Network Manager
nominated by
the European Commission

EUROCONTROL

Network Performance Plan 2015 -2019

Approved by Commission Implementing Decision (EU) 2016/1373, 11 August 2016

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1. INTRODUCTION

1.1 Description of the situation

This document contains the Network Performance Plan (NPP) for Reference Period 2 (RP2) in compliance with the Performance Regulation (EU) 390/2013 and the ATM Network Function Regulation (EU) 677/2011. The NPP is using the template in Annex III of the Performance Regulation.

This performance plan for the Network Manager (NM) contains performance targets for all relevant key performance areas and for all indicators, consistent with the Union-wide performance targets[1] for the entire reference period. It also contains additional key performance indicators and targets deemed necessary to achieve NM objectives for RP2.

Without prejudice, and for practical purposes, the network management functions apply to EU Member States, EUROCONTROL States and third parties with bilateral agreements with NM[2], referenced throughout the document as the NM area. The scope of the targets and objectives defined in NPP is consistent with this pan-European approach.

To be fully compliant with Performance regulation 390/2013 and the Decision 2014/132/EU, a number of targets are also defined for the 28 EU Member States plus Norway and Switzerland, referenced throughout the document as the SES area.

The Network Manager is a key component of the Single European Sky (SES) together with the performance framework and Functional Airspace Blocks (FAB). NM is the EC tool to implement SES in a pan-European dimension and deliver performance in partnership with all operational stakeholders.

EUROCONTROL, through its Network Manager Directorate has been designated to execute NM functions as per scope, role, responsibilities, obligations, working arrangements, oversight arrangements defined in the NM regulation.

1- Defined in Commission Implementing Decision setting the Union-wide targets for RP2 2014/132/EU
2- EU Member States: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom of Great Britain and Northern Ireland;
EUROCONTROL Member States not members of EU: Albania, Armenia, Bosnia and Herzegovina, Georgia, Moldova, Monaco, Montenegro, Norway, Serbia, Switzerland, The former Yugoslav Republic of Macedonia, Turkey, Ukraine;
Third parties: Morocco with regard to ATFM function

1.2 Description of the macroeconomic scenario for the reference period including overall assumptions

Preamble

The number of flights and their distribution within the network are key influencing factors for ANS performance. The variability of both factors creates risks for performance planning. Since Reference Period 1, the Performance Scheme and the Charging Scheme regulations have introduced incentives for meeting cost-efficiency targets. They consist of a traffic risk-sharing mechanism between service providers and airspace users, at national or functional airspace block level. This reinforces the importance of traffic forecasting and of addressing traffic variations in the network planning process.

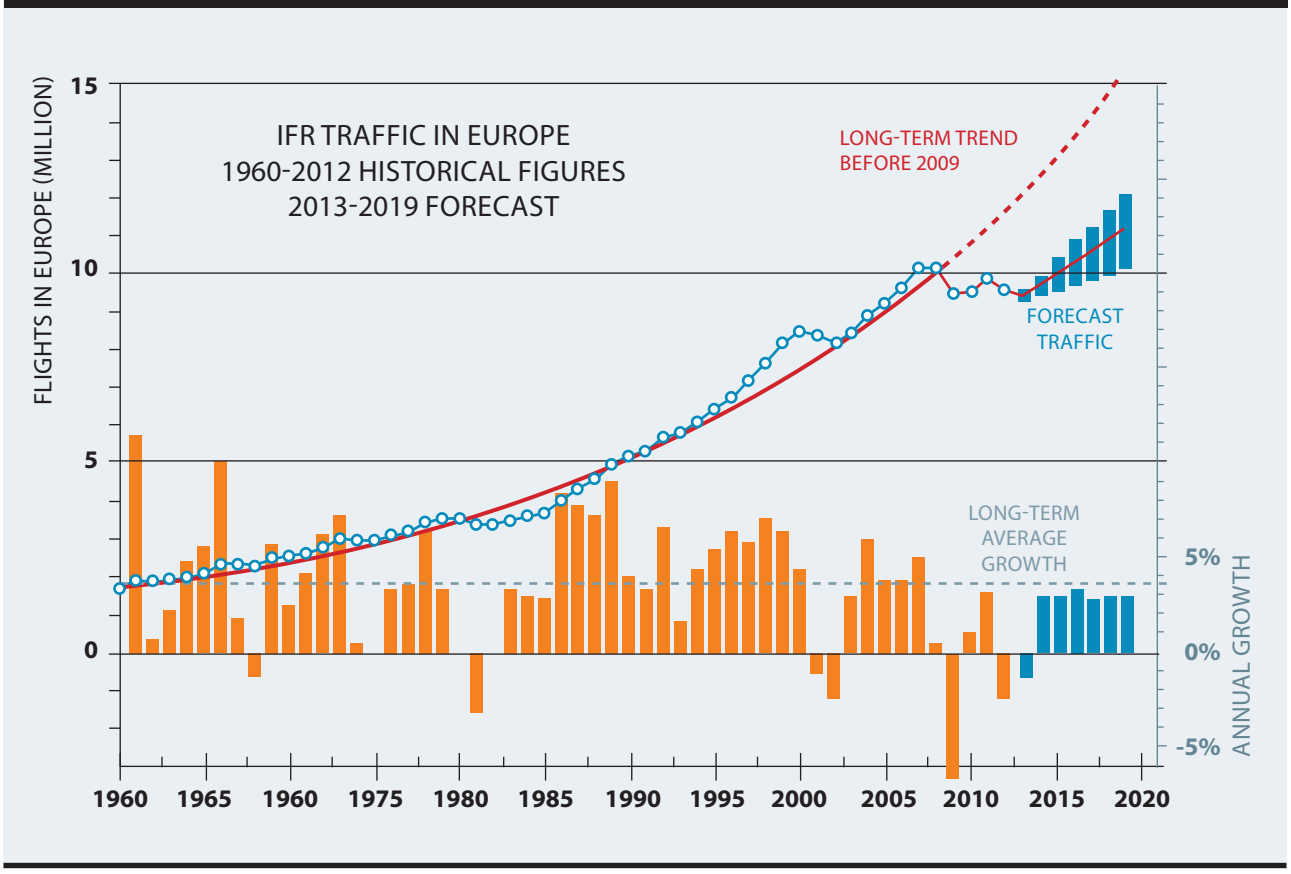
The source of this traffic analysis is the EUROCONTROL STATFOR Seven-Year IFR Flight Movements and Service Units Forecast: 2013-2019 issued in September 2013. This foresees an average annual growth in traffic movements of between 1.2% (low), 2.5% (baseline), and 3.5% (high) for 2015-2019 in the EUROCONTROL Statistical Reference Area 2008 (ESRA08). The cost-efficiency target for RP2 has been established on the assumption of an annual growth in traffic of 1.2% (low case scenario) in the SES area.

Economic context and network forecast

Air transport has long seen cycles of growth, driven by worldwide economic expansion and globalisation. Historically, this generated an average annual flight growth of 3-4% (see Figure below).

From the late 80s, flight growth in Europe was supported by deregulation: the liberalisation of the aviation sector opened the door to low-cost carriers; and the extension of the European Union created the free movement of goods and citizens. This deregulation growth engine started running out of steam in the late 2000s. Coupled with the 2008 financial crisis and subsequent sovereign debt crisis and recession, there was a record decline in traffic in 2009, a brief recovery followed by a -2.4% decline in 2012 annual total.

IFR flight growth in Europe will stay persistently below pre-2009 long-term trend



For the period 2015-2019, the economic situation in Europe is expected to remain fragile, characterised by weak growth or decline in median income and high levels of public debt. Growth will return, but this economic context combined with the dwindling momentum of deregulation and the financial difficulties of the air traffic industry, will be responsible for lower growth rates than before 2008. This is expected to be 2.5% on average per year for flights, rather than the traditional 3% to 4%. This new trend is reflected in the new baseline forecast of 10.8 million IFR movements in Europe in 2019, 13% more than in 2014. The 2008 peak of traffic of 10.1 million flights is now expected to be passed only in 2016. It is essential to take into account the range of forecasts (from a low of +1.2% average growth per annum to a high of 3.5%).

This forecast includes downside risks (e.g. airline capacity reductions in response to weaker demand) and upside risks (e.g. current high load factors might not be able to absorb passenger demand when traffic begins to grow again).

1.3 Description of the consistency with the Network Strategy Plan

The Network Strategy Plan and the NPP were developed in synchronisation. The NPP objectives and actions were developed and adjusted as the NSP evolved. NPP is a direct response to the Strategic Objective (SO) 1 of the NSP.

The NPP shares the same economic outlook as the NSP, which is the basis for the economic and traffic forecast in RP2 used for target setting.

The NSP operational drivers and the strategic objectives have a direct and/or indirect impact on the key performance areas of the performance scheme. The NPP makes reference in the appropriate places to these SOs. The table below gives an overview of the relationship between SOs and the NPP KPIs. Details on the definition of various indicators are to be found under the sections referenced in the last column of the table.

NSP Strategic Objective	NPP (Key) Performance Indicators	NPP section reference
SO 1: Manage performance through Network Decision Making	Monitoring of all KPIs	
SO 2: Deploy interoperable and effective information systems	Network Functions related indicators	3.1
SO3: Implement a de-fragmented and flexible airspace	All environment indicators, notably DES, KEP, KEA, CDR planning and usage	2.1.2, 2.2.2, 3.1.1, 4.1
SO4: Plan optimum capacity and flight efficiency	En-route capacity and flight efficiency indicators	2.1, 2.2
SO 5: Facilitate business trajectories by cooperative traffic management	KEP, KEA, OVD Predictability in the NM system improving the capacity and therefore reducing delays	2.1.1, 2.2.2, 2.1.3.3
SO 6: Integrate airport and network operations	Arrival delay indicator Improve capacity and reducing delays through better flight plan/airport slot consistency Airport flight efficiency	2.1.3, 2.1.2.4
SO 7: Ensure network safety, security and robustness	EoSM. RAT Support to ANSP for achieving their (K)PIs	2.1.1, 2.2.1
SO 8: Optimise CNS resources allocation and cost	All RFF and TCF functions indicators	3.1
SO 9: Develop the network human capital and improve its flexibility	Improve capacity and reduce delay	2.1.3

The **NM Strategic Projects** described in the NSP have a key contribution to the achievement of the NPP targets and objectives. The table below gives an idea of the contribution of these Projects to various indicators in NPP.

NSP Strategic Objective	NPP (Key) Performance Indicators
Free Route Airspace	Key contributor to achieving the KEA target of 2.61% by 2019
Airspace Management & Advanced Flexible Use of Airspace	Key contributor to achieving the DES and KEP target of 4.1% by 2019 and associated objectives for CDR planning and usage as well as FUA indicator
Cooperative Traffic Management	The results of the CTM implementation will support meeting the targets and objectives for: - en-route and airport capacity targets and objectives by improved predictability, better tactical planning, reducing un-necessary ATFM regulations - over-deliveries by improved predictability and better adherence to ATFM departure slot
Airport Network Integration	This will enable the predictability and capacity benefits expected network-wide and locally at airports
Network Business Intelligence	Key enabler for managing the Network and NM performance to drive the performance improvement both at network and local level

1.4 Description of the outcome of the stakeholder consultation to prepare the Performance Plan (main issues raised by the participants and if possible agreed compromises)

NM presented the NM view on RP2 targets to NMB in November 2013 to ensure its performance aspirations are in line with NMB's. The NPP principles and objectives were also presented to the Chairman of the PRB and the Chairman of the PRB OPS Task Force in November 2013 to ensure alignment with the Performance Scheme.

Formal consultation with NDOP (ANSPs and Airlines), NMB (FABs), NMB Task Force, PRB and social partners took place in March-June 2014. NM has reviewed all the comments received and updated the NPP where necessary. NM's response to comments was presented to the NMB/10 in June. NMB agreed that this revised version of the NPP is submitted to the EC by 1 July 2014 and that further comments received will be also communicated to the EC upon their receipt.

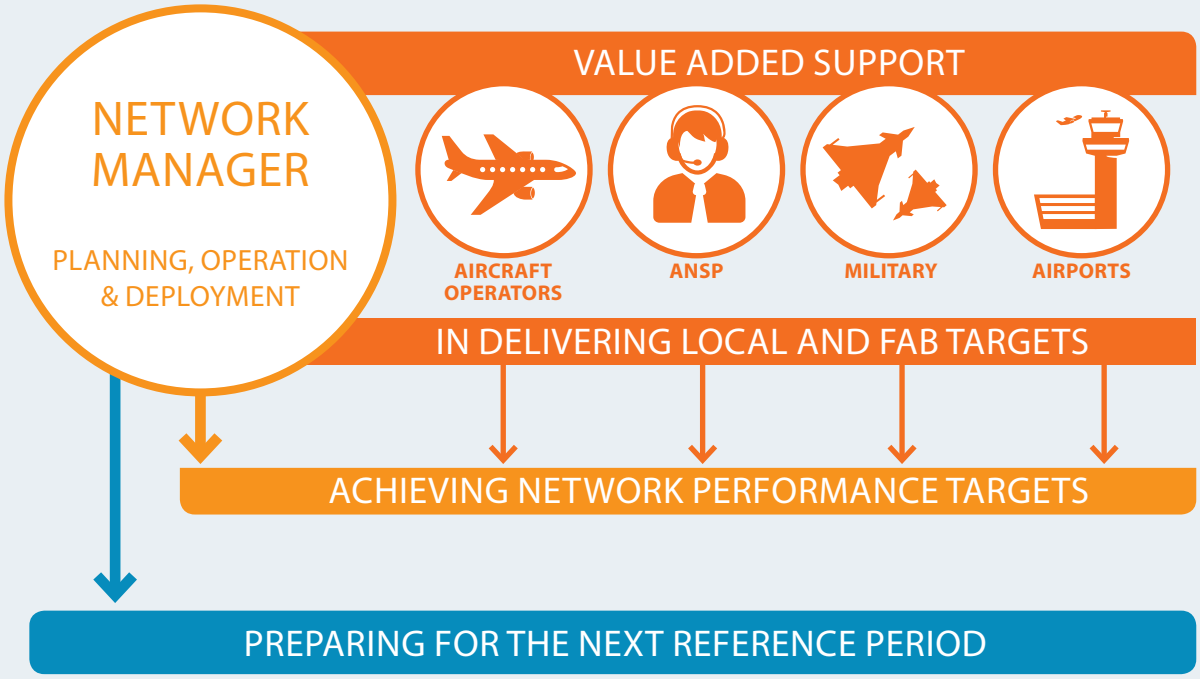
Further comments were received post NMB/10 from stakeholders that were incorporated in the NPP. The Cost efficiency sections were re-drafted along the agreement between the NM/NMB/PRB.

Following the Ad-hoc NMB on 7 October 2014, further changes were made to the cost-efficiency section.

2 PERFORMANCE TARGETS

The pre-requisite for ATM performance delivery is an effective operational partnership and cooperative decision making between the principal stakeholders, i.e. ANSPs/FABs, airports, civil and military airspace users and NM. The achievement of a true pan-European partnership approach is one of the key strategic NSP objectives for the NM and the principal stakeholders.

Network Manager and Performance Targets



The overarching mission of NM is to contribute to the delivery of ATM performance in the pan-European network for performance reference period RP2 (2015-2019) in the areas of safety, capacity, environment/flight efficiency and cost efficiency through:

1. **Value added support to FABs, ANSPs, airports, civil & military airspace users;**
2. **Direct operational performance contribution as a result of NM activities.**

In addition, NM prepares the operational concepts, infrastructure and procedures for network operations in the next performance reference period.

RP2 This Plan defines formal targets for RP2 in compliance with the Performance regulation. They are indicated in this document with the RP2 sign.

NMO In addition, the NPP defines a number of objectives associated with a number of performance indicators, present or not in the Performance regulation. They are not targets in the sense of Performance Regulation, but NM internal indicative value that define a benchmark against which those indicators are monitored.

2.1 Description of the key performance indicators in each relevant key performance area

The NM adds value to the European ATM network performance in the areas of capacity, environment/flight efficiency, safety and cost efficiency. The NPP details the improvement actions and added value from on-going operations and services, as well as specific improvements or short-term evolutions to provide direct benefit or more effective support to FABs, ANSPs, airports and airspace users in the context of the SES performance.

In this context, it is important to establish some principles with respect to how NM treats the four performance areas in the execution of its duties.

1. NM does not compromise on safety in any circumstance. Network safety is paramount in terms of NM safe operations and also the safe operations of other stakeholders.

2. NM operates within its means. It respects the budget agreed by governing bodies, the cost efficiency targets of RP2 and strives for cost efficiency at all times.

3. NM recognises the different performance needs of all the network stakeholders. NM knows that operational decisions can impact stakeholder business results. It uses operational experience, in collaboration with stakeholders, to balance the (often competing) needs. This is particularly true with respect to capacity and flight efficiency.

NM's approach is to improve performance across the whole pan-European network. Day-to-day operations will focus on the wider network to ensure the right demand/capacity balance and provide the best routes available to support our stakeholders. NM has its own objectives focused on the wider network and targets that are aligned to ensure achievement of SES targets.

NM's performance is presented below per key performance area. The distinction is made between direct support to stakeholders to improve their performance and NM's own contribution to performance. Where performance initiatives are presented, relevant NM objectives are stated. There is also a reference to the Network Operations Plan (NOP) where information on expected benefits and deployment plans are presented. Monitoring of the KPIs, objectives and initiatives is done through internal and external processes (e.g. Network and NM performance monitoring, NOP reporting) and presented to governance bodies as necessary (see Section 6).

2.1.1 Safety

2.1.1.1 NM approach to improving safety

The NM adds value in the safety performance area by enhancing network operations safety, meeting its own safety targets, providing support whenever needed to ANSPs to meet their safety targets and preparing for RP3. NM identifies network safety issues through proactive monitoring of network operations and supports ANSPs in identifying and managing safety hazards in their areas of responsibility. The actions and objectives identified in the NPP are in line with NSP strategic objective 7.

There are two EU-wide key performance indicators for safety in RP2: Effectiveness of Safety Management (EoSM) and Severity Classification: Application of the Risk Analysis Tool (RAT) Methodology. Just Culture is a local KPI for safety.

Although these are not NM attributable targets, NM will fully contribute to their achievement by:

- assisting ANSPs to meet these European-wide targets and any local operational safety targets they may set themselves;
- achieving the same EU-wide safety targets and other targets and objectives covering NM's own internal safety activities.

The NM safety management work also provides relevant input to the EASA European Safety Action Plan.

2.1.1.2 Improving Safety Management

NM will contribute towards the achievement of the **Effectiveness of Safety Management (EoSM)** key performance indicator by enhancing the effectiveness of safety management systems through:

- **a direct contribution by improving its own SMS to reach at least Level D in the Management Objectives 'safety policy and objectives', 'safety risk management', 'safety assurance', 'safety promotion' and at least Level C in the Management Objective 'safety culture' by the end of the RP2;** annual incremental target values are defined in section 2.2.1; and
- indirect support to ANSPs and FABs to improve the effectiveness of their SMSs to reach the RP2 target.

The NM activities in support of the above include:

- ensuring the availability of complementary Safety Tools to allow full SMS spectrum (iSMS – integrated SMS) reactive, predictive and pro-active safety e.g. Automatic Safety Monitoring Tool (ASMT), Aerospace Performance Factor (APF), Toolkit for ATM Occurrence Investigation (TOKAI);
- developing and implementing ANSP Safety culture measurement and improvement;
- promotion (spread) of Just Culture with Judiciary; and
- maintenance and development of the SKYbrary consolidated aviation safety knowledge base.

The measures are further detailed in the NOP: 4.4.7 and 5.10.1.

The NM will also continue to work with its partners from beyond the NM area to extend the principle of safety maturity.

2.1.1.3 Risk analysis of safety occurrences

This European-wide Safety KPI and associated target for the application of the **Severity Classification: Application of the Risk Analysis Tool (RAT) Methodology** requires ANSPs to apply it to the severity classification for the following reported occurrences: separation minima infringements, runway incursions and ATM specific events. Within the scope of the NM activities, the RAT methodology is applicable only to ATM specific events, e.g. those specific occurrences related to the inability to provide NM ATFCM functions.

Consequently, NM will support the application of the RAT methodology through:

- **a direct contribution by applying the RAT methodology to the ATM specific occurrences reported through its own SMS with the categories AA (total inability to provide safe ATM services), B (partial inability to provide safe ATM services) and C (ability to provide safe but degraded ATM services). The aim is to assess all such occurrences using the RAT by the end of RP2;** annual incremental target values are defined in section 2.2.1;
- indirect support to ANSPs in implementing of the RAT methodology – i.e. deployment of RAT in all main ANSPs (one per State) within ECAC.

The NM activities in support of the above include:

- maintaining and continuously developing the RAT methodology in close cooperation with ANSP stakeholders (RAT User Group);
- developing guidance material for the harmonised use of the methodology;
- maintaining and continuously developing the web-based Risk Analysis Tool (RAT) to ensure the harmonised implementation of RAT and reporting of the results of its application; and
- supporting the deployment of RAT in all main ANSPs (one per State) within ECAC states

The measures are further detailed in the NOP: 4.4.7 and 5.10.1.

Note: *The application of the RAT is not an aim in itself. The final goal is to have a harmonized methodology to evaluate the risk of all reported occurrences in order to identify where the risk lies in the network and take appropriate actions to mitigate this risk. For that purpose NM aims to use the results of the RAT application to continue identification of high risk areas in the network and develop actions plans in coordination with the stakeholders - see NM Support to Network Safety.*

2.1.1.4 Just Culture

The presence (or otherwise) of Just Culture within States was a European-wide Safety KPI in the RP 1 Performance Scheme; however for RP2, the level of presence of Just Culture within States and ANSPs is only a local (FAB/national/ANSP) key performance indicator.

Notwithstanding this and given that Just Culture is a key enabler for improved occurrence reporting rates (another local PI), NM will provide support to the improvement of Just Culture through:

- direct application of Just Culture within the NM operational environment;
- indirect support to ANSPs in progressing the cause of Just Culture.

A major step in the direct application of JC in its own environment will be the adoption of the NM Just Culture Policy. This will be followed by actions in all area of NM activities and involving all partners: Management, Staff, professional bodies, and social partners.

The NM activities in support of the implementation of JC include:

- promotion of the Just Culture Model Policy;
- Regional Road shows for the Prosecution Policy;
- Development plans and strategies for ANSPs Safety Culture improvement;
- supporting and developing cooperation with the Judiciary;
- developing, managing and delivering Just Culture 'expert' courses (e.g. Prosecutor Expert courses) in cooperation with IFATCA and ECA; and
- the measurement and enhancement of Safety Culture (encompasses Just Culture).

The measures are further detailed in the NOP: 4.4.7 and 5.10.1.

NM will continue to organise and support the Just Culture Task Force and delivery of the Prosecutor Expert course to ensure that the JC will continue to improve at the network level. A Network where lessons are learnt from the identification of potential risks, mishaps and real safety events will be essential to prevent recurrence, to maintain and improve safety levels.

2.1.1.5 NM Support to Network Safety and the Implementation, Monitoring and Improvement of Local Safety Performance Indicators

'Top 5' Operational Safety Risks/Priorities
NM's unique position and access to the network safety performance data enables identification and prioritisation of concrete actions that aim at enhancing network operations safety. Thus, NM will seek to improve the safety of operations in the ATM network by continuing to identify and establish of a Network 'Top 5' operational safety risk priorities and develop action plans in cooperation with NM stakeholders.

In addition, known network operations risk areas (e.g. airspace infringements, runway incursions/excursions, level busts, air/ground communications, unstabilised approaches) will be continuously monitored to assess the effectiveness of the implemented mitigations and continued awareness activities.

A key activity for NM is the deployment of the automatic safety monitoring tool (ASMT) at local level to improve the systemic view over the 'hotspots' at network level. This activity supports the Performance Scheme local safety indicator to use automated safety data recording systems, where available, as part of their local performance monitoring regimes.

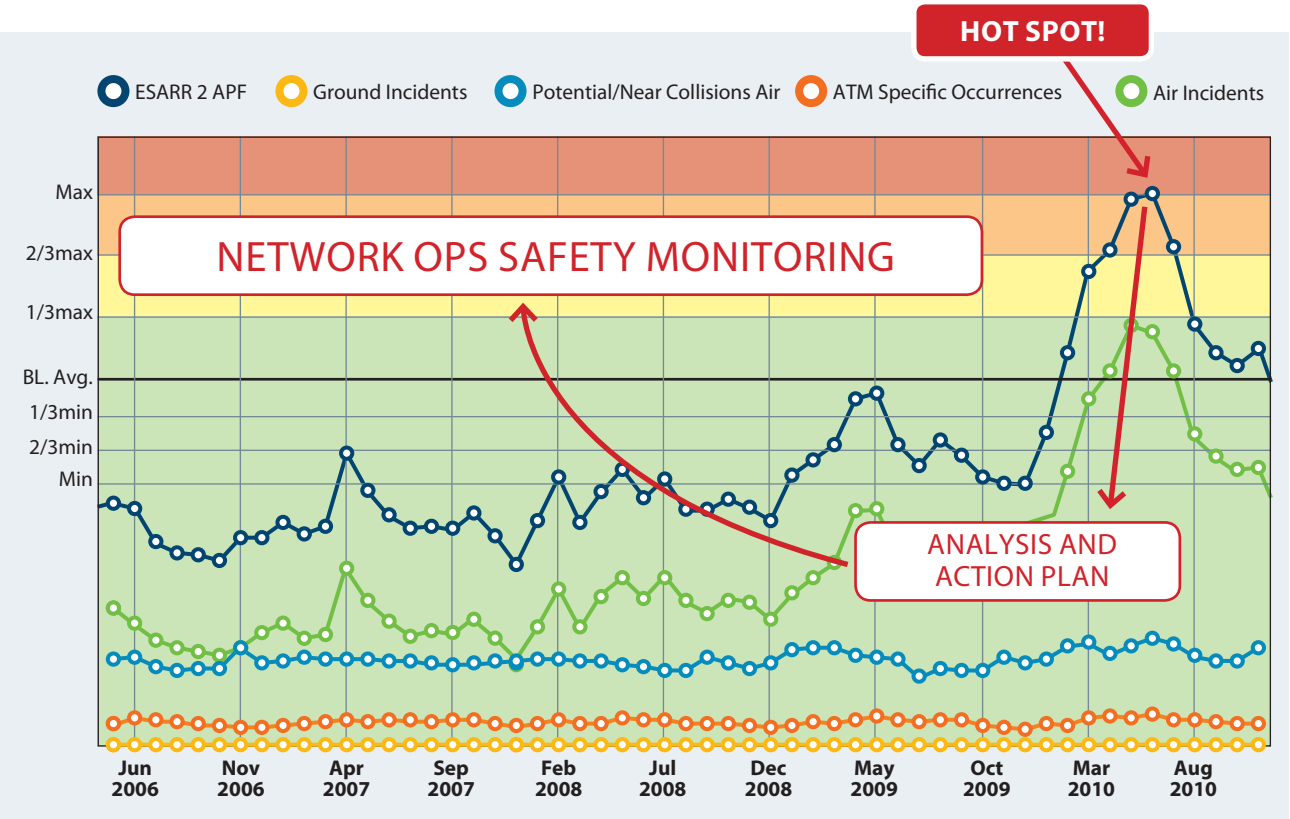
Consequently NM will provide support to the identification and mitigation of operational risks by:

- direct identification of Network operational safety risks (including for its own operations);
- indirect support to ANSPs in implementing mitigation measures for the identified risks.

The measures are further detailed in the NOP: 4.4.7. 5.10.1 and 6.4.

Safety Monitoring Tools

In addition to the RAT, NM will use a network safety indicator based on the Aerospace Performance Factor (APF) tool and using an RP1 baseline. NM manages the voluntary incident report scheme EVAIR, a very effective tool for feeling the pulse of the network in terms of operational safety and uses other safety information flows where available.



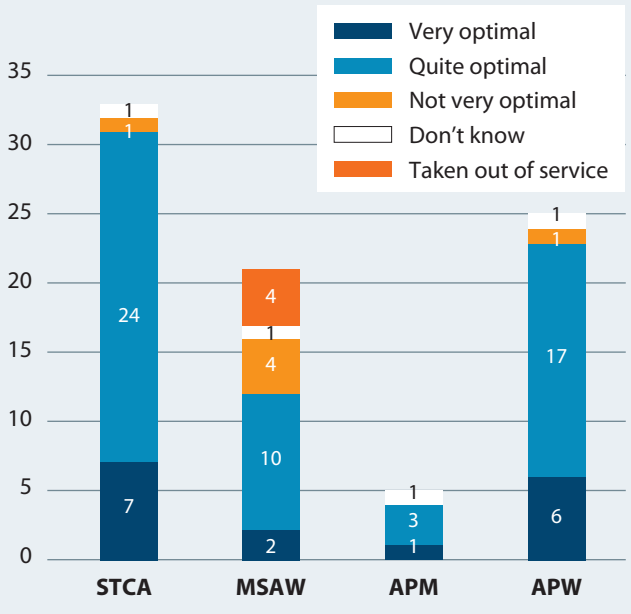
The measures are further detailed in the NOP: 4.4.7, 5.10.1 and 6.4.

Safety Nets

The 2010 EUROCONTROL Safety Survey showed that not all European ANSPs surveyed has some form of tool for safety nets and fewer than 20% were using all four safety nets (STCA, MSAW, APM and APW). By the end of 2016 this should be rectified and result in a significant increase of the achieved level of safety throughout the European airspace

The measures are further detailed in the NOP: 4.4.7 and 5.11.3.

Are safety nets operating optimally?



Source: EUROCONTROL Safety nets survey 2010 (33 responses)

Airport safety
NM supports stakeholders at airports (ANSPs, Airlines and Aerodrome operators) to mitigate the contributing factors in order to reduce runway safety events, using 2010 data as a baseline. A new airside safety project cumulating initiatives such as prevention of runway incursions and excursions and unstabilised approaches will be the main vehicle to improve the safety of aerodrome operations.

The measures are further detailed in the NOP: 4.4.7 and 5.10.2.

Reducing the Human Contribution to Risk
Despite all the technological advances, the human remains central to ATM. The Network Manager has unrivalled expertise in the field of ATM Human Performance and is leading the way for the implementation of human performance enhancement initiatives. The performance target is to implement the Safety Team's Safety Human Performance Plan to ensure the sustainability of the SES 5th Pillar - Human Factors.

2.1.2 Environment

2.1.2.1 NM approach to improving environment

The NM adds value in the environment area by contributing to the design of an efficient airspace structure, a better airspace utilisation by the operational stakeholders, the optimisation of the flights and other flight efficiency initiatives.

The NM will coordinate the following activities to achieve the required improvement in flight efficiency:

- En-Route network development and improvement:
  - Continuous airspace development, including cross-border solutions, route network, Free Route Airspace and associated sectorisation;
  - Airspace and route network usage improvement;
  - Identification of improvements in flight planning for various flows and city pairs taking into account the latest network situation;
  - NM proposals for flight planning improvements in the pre-tactical/tactical phases;
  - Focus on 50 most penalising city pairs;
  - ATFM routing scenario impact assessment.
- Increase CDR availability and CDR usage:
  - Increasing the number and harmonisation of CDRs;
  - ASM scenarios;
  - Network impact assessment.
- ASM rolling process: extend and improve utilization of CIAM, AUP/UUP and rolling UUP processes;
- Vertical flight efficiency;
- RAD contributions to enhance operational efficiency;
- Flight Efficiency and airport operation.

All these operational improvement actions are done for the entire NM area. For this reason NM defines the environment indicators for the NM area as it is operationally desirable to maintain a consistent network, without interruptions.

In doing so, the NM approach is consistent with the EU-wide targets defined in the Decision setting the Union-wide targets for RP2 2014/132/EU, by targeting the same improvement from the 2012 baseline to the 2019 target. In this way, by targeting the NM area we ensure that SES targets are also met (see 2.1.2.2 and 2.1.2.3 for details).

The Performance regulation defines two key performance indicators (KEP and KEA) and three performance indicators at EU-wide level (FUA, CDR planning and CDR usage). The NM considers the two KPIs as network attributable targets; NM is proposing actions for the improvement of the other PIs (the two CDR indicators are already part of the NM performance plan for RP1). In addition NM is including (as it did for RP1) a performance indicator - route extension due to airspace design - to capture the performance of the route network design, one of the network functions entrusted to NM.

The NM activities related to route network design are explained in section 3.1.1 "Route Network Design function".

2.1.2.2 Improved Airspace Utilisation by Operational Stakeholders

In parallel with the improvement of the airspace structure, NM will work with its stakeholders to improve utilisation of the airspace structure. These actions include: better flight planning to make use of the shortest available route; improving the availability and the use of the Conditional Routes (CDR); reducing unnecessary route restrictions; addressing the most penalising city pairs and others.

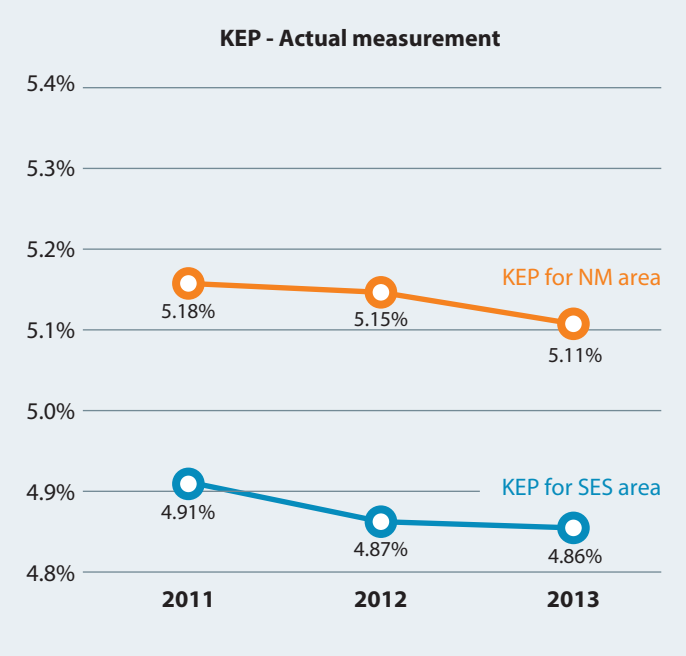
NM is including a number of indicators to capture the performance in this area.

Flight Planning Improvement
The key performance indicator will be the **average horizontal en route flight efficiency of the last filed flight plan (KEP)**.

The RP2 KEP target for the SES area is 4.1% and this is the target set by NM for SES area. In addition NM sets its target for the NM area, which is larger than SES area, and the evolution of the KEP values in 2011-2013 period was taken into consideration in the setting of the target for NM area.

To this effect the target for NM area was adjusted with the difference between the KEP values for SES and NM area by targeting the same improvement over 2012 of 1.05 pp (see the chart, data source PRU). Applying this approach the RP2 target for NM area is 3.82%.

Day-to-day operations will focus on the wider network to provide the best routes available. This will also ensure that flight efficiency improvements target the entire trajectory within NM area (to avoid getting better results for one area at the expense of a deterioration of the overall trajectory). NM has its own objectives focussed on the wider network and targets that are aligned to ensure achievement of SES targets.



RP2 This is a European-wide indicator in RP2 and the **NM target for RP2 is to achieve 4.1% for the SES area for the KEP indicator by 2019, fully consistent with the EU-wide target**. The intermediate annual values are presented in section 2.2.2

NMO **NM objective for RP2 is to achieve 3.82% for the NM area for the KEP indicator by 2019**. The intermediate annual values are presented in section 2.2.2

The evolution of this indicator in RP1 was less successful than the DES indicator. Re-routing due to capacity problems in certain areas and due to industrial action continue to adversely affect the indicator. A proportion of the en-route inefficiencies results from non-optimal flight planning by the airspace users with respect to the shortest constrained route (which is the shortest route that could be found by NM system path finding algorithms and flight plan validation). By improving the airspace design, reducing the unnecessary route restrictions and other measures (see above), the NM will improve the potential route reduction offered by the shortest constrained route (SCR) with an amount sufficient to offer the possibility to meet the RP2 target for flight planning. NM estimates that, in a typical day in May 2014, up to 93000 NM are lost from what is available in the network, based on the SCR calculated by the the NM systems. However, one of the reasons for non-optimal flight planning with respect to horizontal distance is the interdependency between the cost of flight and horizontal distance due to differences between the unit rates in Europe. When cost factor and other constraints outside the NM control are taken into consideration the potential distance reduction could fall to a quarter of the value calculated on pure distance. This is a risk to the achievement of the KEP target. The NM will monitor the route extension based on the shortest constrained route profile calculated by the NM systems.

A number of actions will be taken by NM during RP2 to support the achievement of the KEP indicator by using of the Group Re-Routing Tool to send re-routing proposals (RRPs) for the flight plans (FPLs) that have better options.

NM will monitor in post operations what the direct and indirect uptake is for its proposals and will monitor the route extension based on the shortest constraint route profile calculated in ETFMS.

NM added value in achieving the flight planning target.
NM initiated a Flight Efficiency (FE) Initiative in 2013 that offers opportunities for FE savings (in distance and/or time) to the airspace users. Improved routes are proposed in the strategic flight planning phase or when an invalid flight plan is processed by IFPS staff. A network impact assessment is carried out to find the best opportunities for CDR2 usage and they are proposed to the airlines that can benefit from these opportunities. The **most-penalising city pairs** is another initiative NM will be pursuing to identify and propose savings. Initial results show a positive impact on the KEP indicator. NM will monitor if the changes proposed in the strategic phase are taken up by the airlines in the next AIRAC cycle (i.e. FPL changes accordingly). When they are not, NM Operations Centre (NMOC) will work with the airlines to make proposals for FE savings. NM will continue to implement these initiatives during RP2 as part of the FE Work Programme to achieve the target for KEP.

The NM systems will be used to send re-routing proposals (RRPs) for the flight plans that have better options to support the achievement of the KEP indicator.

NM will monitor in post operations what the direct and indirect uptake is for its proposals.

As more effort is required at the beginning of RP2 to catch up with the slower improvement of KEP in RP1, the NM objective is that these FE direct savings will amount to 10% for 2015-2016 and 5% (2017-2019) of the savings required to achieve the annual 0.17 percentage points (pp) reduction each year.

2.1.2.3 Optimised flights

NM will fully support the ANSPs and FABs in the deployment of cross-border free route airspace and in further optimising the actual flights to meet the **average horizontal en route flight efficiency of the actual trajectory (KEA)** indicator. The indicator will be calculated using the PRB methodology. The KEA values for NM area in 2012 (3.20%) is slightly higher than the SES area (3.17%). Applying the same logic as for KEP indicator this would mean that the NM target should be higher with the same amount. However, NM will apply the most stringent approach and will adopt the 2.6% also for NM area, the difference counting as an ambition factor.

NM has its own objectives focussed on the wider network and targets that are aligned to ensure achievement of SES targets.

The NM target for RP2 is to achieve 2.6% value for KEA indicator by 2019 for SES area, fully consistent with the EU-wide target. The intermediate annual values are presented in section 2.2.2.

NM objective for RP2 is to achieve 2.6% for the NM area for the KEA indicator by 2019. The intermediate annual values are presented in section 2.2.2

The main project that NM will concentrate on to optimise the actual trajectory and bring tangible benefits in RP2 is the cross-border **Free Route** at least in the airspace above FL315.

The NM Performance Plan target for 2014 is to fully or partially implement Free Route Airspace within 25 ACCs within the ECAC area. Until 6 March 2014 Free Route Airspace has been partially and/or fully implemented in the following ACCs: Aix, Beograd, Brest, Brindisi, Bordeaux, Bucuresti, Karlsruhe, Kobenhavn, Lisboa, Ljubljana, Maastricht UAC, Malmo, Marseille, Milano, Padova, Praha, Reims, Roma, Shannon, Skopje, Sofia, Stockholm, Tampere, Warsaw, Wien and Zagreb ACC. **The 2014 Network Manager/ NM target has already been met with reaching a number of 26 ACCs.**

NM will continue to actively support network and local development and implementation of Free Route Airspace projects focusing on the cross-border approach to such implementations.

2.1.2.4 Other flight efficiency initiatives addressing the environment area

Flight efficiency at airports and in TMA airspace will focus on improvements to TMA operations, including Continuous Descent Operations (CDO) and Continuous Climb Operations (CCO) deployment.

The existing CDO, which is an elementary application of the concept, brings not only direct benefits in terms of fuel saving but also the 'culture change' needed in support of further improvements to the concept. Such enhancements will be identified, agreed and deployed at 20 airports.

Vertical Flight (In)efficiencies
A second element of flight efficiency is the vertical profile. One way for sectors to be protected from overloads is through flight level capping of flights. Level capping scenarios are often used to reduce complexity and/or traffic in order to avoid regulations. However the cost of such level caps needs to be offset against the delay saving.

NM included in RP1 an objective for measuring the vertical flight inefficiencies. The proxy indicator used is th NOX[3] indicator, as the vertical flight efficiency has a major impact on its evolution. However the evolution of NOX is not influenced just by the vertical dimension.

The difficulty of deriving an indicator capturing only the vertical efficiency stems from the absence of a model on what an optimum vertical profile could be. There is no indicator on vertical FE in the Performance scheme for RP2.

In RP2 NM will continue to address an approach balancing the delay savings and the usage of ATFCM level capping scenarios. In parallel NM will continue to work with its stakeholders to find ways to better monitor the vertical flight efficiency.

2.1.2.5 Support to the implementation and monitoring of the local indicators for flight efficiency

The NM system (as of 2015) will support the ANSPs to calculate their own CDR-RAI and CDR-RAU indicators for RP2 at State, FIR, FAB, ACC level as well as per individual CDR on any period of time.

The NM CODA unit supports the PRB and the ANSPs and airports in the collection and analysis of the data for the calculation of the additional time in taxi-out phase and the additional time in terminal airspace.

2.1.3 Capacity

2.1.3.1 NM approach to improving network capacity

The first years of RP1 saw a favourable evolution of the en-route ATFM delay per flight target (achieved in 2012 and 2013). For 2014 the target was 0.5 min/flt, which is maintained throughout RP2. This is challenging at the current level of traffic and it will be even more challenging as the traffic is expected to grow again in RP2. The network capacity needs to increase by 17% between 2012 and 2019 to achieve this target in a scenario of 13.6% average traffic growth (STATFOR September 2013 Forecast, baseline scenario).

NM's approach is to improve performance across the whole pan-European network. The NM will address the specific issues that impact the imbalances between demand and capacity, both en-route and at airports, at network and local level. NM will continue to provide full support to its stakeholders to achieve and improve their capacity performance, prioritising the FABs, ANSPs and airports that most impact the network. NM is deploying its own initiatives to address network issues to reduce the delays so that the en-route and airport ATFM delay performance targets and objectives are achieved throughout RP2.

NM will address the critical areas through the NOP planning process, identifying actions to mitigate the problems. In addition the Transition Plan for Major Projects in Europe will minimise the impact on the network performance caused by major airspace or ATM system improvement projects. NM operations will deploy various measures to manage the network issues, which includes CDM network procedures (e.g. network delay attribution), NMOC actions (e.g. slot swapping, extensions and exclusions).

3- mono-nitrogen oxides NO/NO2

The NPP defines targets for the European-wide key performance indicator for en-route ATFM delays and objectives for the European-wide performance indicator for arrival ATFM delays. Wherever appropriate, individual objectives are set for the NM initiatives to reduce the en-route or airport ATFM delays. Full support is provided for the monitoring of the local (key) performance indicators.

In RP1 NM started to integrate airport operations in the network; this will accelerate during RP2 so that capacity problems are addressed wherever they appear. In addition NM will monitor separately the TMA induced delays, that currently appear as en-route and/or airport delays, so that the interface between en-route and airport is more clearly defined.

2.1.3.2 NM support to stakeholders to improve capacity

NM is pursuing several capacity initiatives that support stakeholders in achieving their individual capacity targets. This support is offered to all ANSPs and FABs within the pan-European airspace with priority given to ANSPs that have the largest operational impact on the network delay.

In addition, the NMOC works closely and collaboratively with ACCs and airspace users to implement the daily network operations plan and deliver the performance level offered by the ACC. A summary of the different areas of NM contribution to ANSPs/FABs is provided below.

Airspace Design
The cooperative approach to route network and airspace design between ANSPs, States and NM will continue. ARN will be the tool used to coordinate the airspace design projects in preparation and the airspace change proposals scheduled for implementation (route changes, re-sectorisation projects and TMA projects) to enable the improvement of sector and ACC capacities (see the relevant NOP and European Route Network Improvement Plan (ERNIP) documents).

Support at Planning Phase
Preparation of the NOP for the period 2014-2018/2019 provides the complete basis for a recognised capacity planning process that identifies actions and activities at local and European network level needed to improve capacity. A number of measures addressing the causes of constraints are proposed as the basis of an action plan at ANSP, FAB and network level, aimed at delivering the required performance. Critical areas are identified and additional measures to address those areas defined. NM will use its working governance structures to seek the successful implementation of these additional measures. NM will continue the extension of the capacity planning process to the airports. The process started with the inclusion of the major European airports (that constrain the network the most) in the preparation for NOP 2014-2018/2019.

NM system improvements will allow a better sharing of the operational and performance data between NM and its stakeholders, which will allow the FABs and ANSPs to better monitor their performance.

Special events
Consolidated in the context of the NOP, the ANSP capacity plans reflect the expected traffic and projected capacities planned for the duration of special events like the 2014 Winter Olympic Games. Detailed coordination between NM and the operational stakeholders is essential to diminish the impact of such events, although such preparation has its limits and cannot fully mitigate the impact.

Planned Network Events
The Transition Plan for Major Projects in Europe, part of the NOP, describes the processes, activities, plans and measures that will be applied by the NM and the operational stakeholders to minimise the impact on the network performance caused by major airspace or ATM system improvement projects. The Transition Plan deals only with scheduled significant events that could lead to a temporary reduction of capacity and that may require mitigation measures agreed in a partnership approach at network level. Examples of such events are: implementation of new ATM system, move to new ACC OPS room, major airspace reorganisation including change to the ACC area of responsibility, opening of new airports. At the pre-tactical and tactical phase, NMOC can run simulations to support the FMP in identification of additional mitigation measures.

Network Disruptions
Industrial action had proved to have a significant impact on the en-route network delay target. In 2013 the industrial action delays amounted to 0.07 min/flt out of an en-route delay of 0.53 min/flt, which constitutes 13.6% of the en-route delays. NM with the support of NDOP compiled a repository of measures for mitigating industrial action.

NMOC will continue to manage these events to minimise delay. It will use existing procedures, providing alternative routing options, disseminating information and teleconferencing.

In cases of ad-hoc disruption the NM is equipped to find a solution, as it was the case with the FDP system limitation in Warsaw ACC during summer 2013.

Support at Strategic/Pre-tactical/Tactical Phase
All the detailed collaborative work between NM and ANSPs six months from day of operations is aimed at ensuring that ACCs have the best possible capacity to meet the expected demand on the day of operations. NM aims to strengthen this collaboration to ensure that every day ACCs have the best possible plan, including the best airspace and sector configurations to manage safely the expected demand. NM will also develop the axis management processes into regional performance management processes with a focus on common actions to reach en-route capacity targets.

On the day of operations, plans have to be adapted to react to the reality of operations. The ACCs, Airports and NMOC will work together to minimise local and network delays as far as possible. Any diverging opinions as to how to resolve demand/capacity imbalances will be addressed within the agreed CDM process.

NM will inform the FMPs, airports and ACCs of **weather problems** with the potential to impact the local and network operations. It will provide the weather bulletins via the NOP portal.

The pre-tactical and tactical cooperation between the NMOC and airports will be improved by a better data exchange, including the eventual AOP/NOP integration. This will be facilitated through the implementation of **Airport Operations Centres** at the largest airports, resulting in the better anticipation and application of ATFM measures, with reduced overall delays. Intermediate improvements will be sought through the gradual integration of NMOC and airports' data and decision making (e.g. the adverse weather trial of winter 2013/14).

Post Ops Monitoring
A proactive monitoring of operations is part of the activities of NM. The annual target is apportioned for each day of operations and for each ACC which enables the monitoring of the implementation of approved capacity enhancements in the NOP, the achievement of the daily/weekly targets (as set in the Playbook tool) and ultimately how close/how far is the network from achieving the annual target. A collaborative process with ANSPs/FABs will identify and address unforeseen delay events in sufficient time to minimise the impact on the delay performance target.

2.1.3.3 NM actions to directly contribute to capacity improvement

NM is pursuing several initiatives that deliver additional and tangible delay reduction benefits resulting from its network centric operations. These performance contributions will mitigate impact of high demand or lack of capacity to reduce the network and close partially the gap to the network performance target of RP2.

NM implemented a direct operational performance contribution in driving down delay in RP1. Daily delay targets for each ACC and for major airports are established during the strategic and pre-tactical phases; these targets drive the actions in the NMOC during the day of operations.

The focus of NMOC is to concentrate on:
- Anticipated problem areas providing network solutions at the planning stage;
- Minimising global and individual flight delays;
- Enhanced network operations procedures.

NM tools deployed for delivering the delay reduction

NM has a toolkit of measures which it can deploy to manage network issues.

Network delay attribution
This process uses scenarios to offload major congestion areas agreed via CDM in the pre-tactical phase, even if these will cause (or increase) delay in the area to be on-loaded, provided that the overall delay in the network is reduced and the delay performance in the on-load ACC will not suffer.

Slot swapping, extensions and exclusions
Slot swapping provides an opportunity for airspace users to minimise disruption to their operations during periods of ATFCM regulation by prioritising their flights.

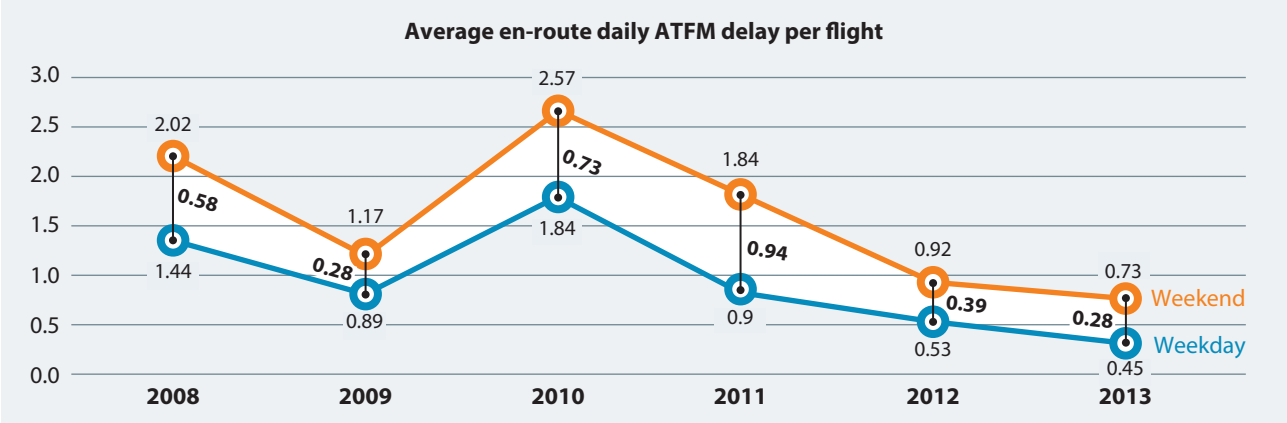
Slot extensions are provided to airspace users on request via the e-Helpdesk when external reasons prevent adherence to the original CTOT. Slot exclusions are provided in order to optimise the use of available capacity and to minimise individual flight penalties.

Re-Routing Proposals (RRP)
NM proposes re-routing to the airspace users to avoid the congested areas and save or avoid delays. The requirement for re-routing and its acceptability to airspace users depends directly on the delay situation and the airline's economic cost model.

Other tools will be available during RP2 as the NM strategic projects will be deployed. (e.g STAM, CTM)

NM initiatives and actions for reducing the ATFM delay

Targeting weekend delays
There should be fewer delays and more available capacity during weekends as there is little or no military operations or temporary segregated areas and most conditional routes are available for flight planning. Despite a slight decrease of the gap between weekend and weekdays en-route delay per flight in 2013, there is still a gap to close (0.28 min/flt in 2013). This translates in approximate 730,000 minutes at 23,796 average daily traffic for the 110 weekend days.



Specific actions to achieve the weekend delay reduction will be part of the axes management. The NM will continue to work with the ACC concerned and local FMP to match the airspace and sector configuration with the traffic demand and complexity. This will be a cooperative action between NM and ANSPs starting from the capacity planning phase into operations. NM objective is to reduce en-route weekend delays by 80,000 minutes per year, which over the five years RP2 period would amount to more than half of the gap.

From another perspective, to maintain the en-route delay at 0.5 min/flt from 2014 to 2019, the delay reduction at network level amounts to about 650,000 minutes (baseline traffic growth), a figure close to the weekend-weekday gap. Therefore balancing the weekend and weekday delays will contribute positively to the achievement of the en-route delay target for the FABs and the network.

Mitigation of weather generated delays
Weather is a factor/cause of delays both on the ground and in the air. Weather briefings were introduced as a first step in the process of mitigation for weather disruptions across the network.

NM is implementing a novel approach in looking at the weather and its impact of the network operations - the Network Weather Resilience process (including weather risk assessment). The process and its supporting tools are aimed at increasing the **anticipation of the network weather impact** in terms of weather constraints for the network and potential performance degradation. This will **increase the predictability in the network** and will enable an explicit monitoring and management of flight delays, including those attributed to weather, and an objective approach to estimate the network impact against the actual severity of the weather phenomena.

This is by its nature a collaborative process between the NM, the ANSPs and airports. The weather forecast is translated into a risk measure for the network that can lead to the assessment of the potential impact on a certain location (airport or ACC) which is the basis for the decision making on the best measures to take to mitigate the impact (e.g. Configuration change, STAM, ATFM regulation).

The collaborative process involves four different **maturity levels** that can be measured for each reference location: M1-Baseline, M2-Reference, M3-Decision and M4-Prognostic. The Decision maturity level (M3) will allow the NM and the ANSPs to take full advantage of the entire Weather Resilience process. Therefore the NM objective in RP2 is to implement this process to at least the M3-Decision level to a significant number of locations (airports and ACCs) in cooperations with the stakeholders involved. Once this is achieved then the Network Weather process becomes an effective means to increase predictability which in turn could benefit the available capacity at those locations.

As the implementation will take place gradually during RP2, the NM objective is to achieve for the Network Weather Resilience process the Decision maturity level (M3) for 50% of the top 60 airports (based on the airport network impact and/or past weather phenomena significance) as well as 50% of the top 20 ACCs.

Minimising individual flight penalties

The application of ATFCM regulations leads to large numbers of flights receiving slot messages and delays. An important function of NM is to manage these regulations and ensure that flights do not suffer undue disproportionate penalties and that the available capacity is used to its maximum during the regulation period. NMOC will work on the delayed flight list and use RRPs and scenarios as actions to meet the objective. In 2012 NM managed to lower the percentage of the flights with delays above 30 minutes to less than 1%. The objective of NM is to maintain this level of performance throughout RP2.

NM objective is to maintain the percentage of flights with ATFM delay > 30 minutes to less than 1% of total flights.

ATFCM Efficiency

ATFCM regulations can be applied in marginal situations where other measures can be used to avoid regulations (e.g. minor configuration and capacity modifications, "cherry picking", STAM). ATFCM regulations that generate less than 200 minutes of delay are considered as being avoidable (this will not include the ATFM measures design to avoid the application of ATFM regulation like STAM or MCP). The average daily number of ATC capacity and staffing en-route ATFCM regulations that produce less than 200 minutes of delay in 2011 was almost 25. NMOC will continue to monitor and report to FMPs the ATFM regulations which are not considered effective and that could be avoided using other measures.

NM objective is to reduce the average daily number of ATFCM regulations that produce less than 200 minutes of delay to below 20 per day.

Reactionary Delays

NM will target morning delays which have more impact than afternoon and evening delays on airline operations as observed through reactionary delay. The intention is to work collaboratively with airlines, ANSPs and airports to reduce the impact of first rotation regulations and improve the predictability of the operations during the afternoon. Measures include a network-wide agreement to prioritise resources to improve the punctuality of the first rotation, promoting the use of the NM Scheduling Indicators for Airlines, actions taken by the night shift to prepare the first rotation and a focus on flights arriving significantly ahead of schedule.

Every year of RP2 NM will target one or more airports/ACCs where the analysis shows there is significant potential delay reduction that will have a multiplier benefit for reactionary delays. The actions will target the capacity and staffing related delays, as the weather or disruption related delays are addressed by different NM initiatives.

NM objective is to target at least one airport/ACC each year from the ones with significant network impact to reduce first rotation delays (related to capacity and staffing) by 10% at those airports

Over-deliveries

The NM will continue to monitor the impact of over-deliveries above the declared capacity limits by the ATFM system when regulations are in place. This is to ensure that traffic values set by ATFM regulations are met with the highest possible accuracy.

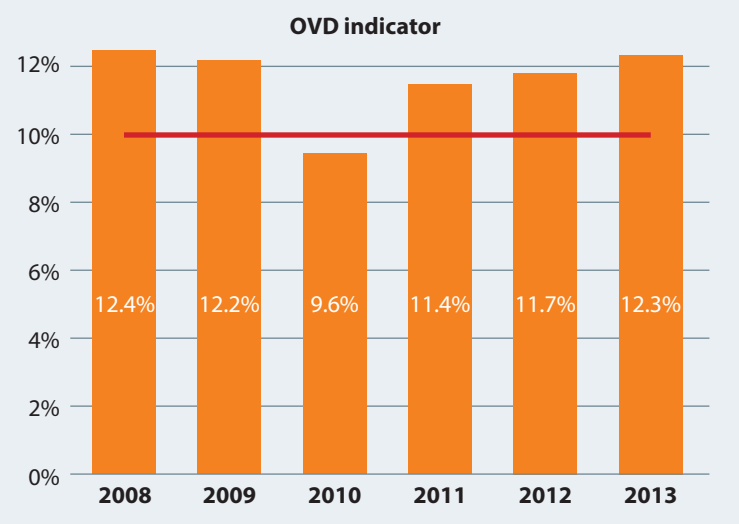
During RP1 NM started the analysis of the overall causes and contributors to the over-deliveries (OVD). Changes to the NM system are being developed to allow for a better in-depth analysis. The reasons and causes of over-deliveries are complex and diverse. The Weather and ATC equipment regulations have quite often an activation time only minutes ahead of the start of the regulation. The aircraft due to enter the regulated airspace will therefore be already airborne and may cause OVD in the time interval immediately after the regulation starts, especially when the regulated rate is below the nominal capacity. The weather tool that is being developed can provide a better anticipation of weather problems, which could increase this lead time for regulation activation and as such reducing OVD (amongst other benefits, see above).

The intruders (flights that are entering a regulated airspace by deviating from the flight plan) are another cause of the OVD. For example in the upper sectors the vertical profile deviation is the major contributor. Flight level adherence project will look at actions to improve the situation.

Other projects and actions envisaged by NM to reduce OVD will target the improvement of the predictability in the NM systems: Cooperative Traffic Management, improved adherence to ATFM slot departure, 4D Trajectory.

To monitor the level of over-deliveries, NM has defined the OVD indicator as the proportion of number of hourly slices with over deliveries in ATFM regulations in the total number of hourly slices. The OVD measures an average of the time when the regulated traffic volume received more traffic than the regulated rate vs the total regulated time. For this purpose the regulated time is sliced in overlapping hourly slices at every 20 minutes interval, to capture better any period with over-delivery.

The OVD indicator (as defined above) was consistently above 10%, with values of 11.7% in 2012 and 12.3% in 2013 (the only exception was 2010 but that was due to the big number of industrial action related regulations).



NM will work during RP2 with all its stakeholders, ANSPs, Airlines, Computer Flight Plan Service Providers to reduce the value of this indicator down to 10% in 2019. This is an indicative value as the improvements due to the different actions foreseen could not be quantified at this stage. NM will monitor the evolution of this indicator throughout RP2 to ensure a targeted implementation of these measures on the problem areas. As the understanding of the different contributors to over-deliveries will be improved and the operational impact better known, NM will refine the OVD indicator to capture better the real issues.

Airport Slot / Flight Plan Consistency

This has long been recognised as a means of improving the coherence between planning and operations, improving demand/capacity balancing. Today, 97 airports are coordinated in EUROCONTROL Member States covering between 85% to 95% of all IFR traffic.

NM is addressing in RP1 issues related to the incompatibility between the airport slots and the flight plan e.g. the Greek Island delay reduction initiatives, which achieved very good results in 2012 and 2013. A more systematic approach needs to be developed to ensure that the actions initiated by NM become normal operating procedures.

During RP2 NM will analyse where the inconsistency between the airport slots and the flight planning are causing a significant effect at network level and will work with those airports (or group of airports), ANSPs and airlines involved to improve the situations and minimise the delays. Whenever these inconsistencies are taking place in the first rotation period, the actions taken will address both this objective and the one above on first rotation/ reactionary delays. NM will continue until a pan-European approach is implemented.

Improve the airport integration in the network
The 2012 edition of the NMPP called for the implementation of **Airport CDM** into 20 of the top 40 airports. With this objective firmly in sight and the rate of deployment accelerating the NM intends to support the implementation of A-CDM to reach 42 A-CDM airports by the end of RP2, which will deliver the 4% average sector capacity increase expected.

The **Advanced Tower** concept is a cost effective means of enabling smaller airports to become connected to the NMOC. The objective is to reach 50 such Advanced Tower airports by end RP2. Benefits come from an improved predictability of traffic and flow measures at network level combined with a reduction in workload at local and network level through reducing voice communications. Deployment may be a precursor to eventual A-CDM deployment as the airport concerned grows.

The implementation of A-CDM and Advanced Tower will see 60% of the traffic subject to **Departure Planning Information (DPI)** resulting in a network that is becoming a homogeneous entity. This will enable the predictability and capacity benefits expected network-wide and locally at airports.

Other measures to **increase airport capacity and reduce delays** will be:

The deployment of **Time Based Separation (TBS)** at 5 airports; Time-based separations are an effective means of improving airport resilience during periods of strong wind, enabling the recovery of 2-5 movements per hour at a busy hub airport. The concept is being developed by SESAR and will be mature by 2016.

The application of RECAT-EU at five major airports will enable overall capacity increases of up to 2.9% overall (5.5% during peak periods) at those airports, bringing an overall improvement of the network performance and in particular a reduction of delay.

Deployment of **Cooperative Traffic Management (CTM), including Target Time of Arrival** will enable a better tactical planning of traffic into the terminal airspace through the use of TTA and advanced AMAN will help build an optimum and reliable sequence, reduce controller workload and minimise delays in the terminal airspace.

2.1.3.4 En-route capacity

NM will address in RP2, using the toolkit of measures at its disposal the specific en-route aspects of following initiatives:

- Weekend delays;
- Individual flight penalties;
- Increase ATFCM measures efficiency;
- Mitigation of weather generated delays;
- Reduction of first rotation delays.

It is expected that, based on existing methods of measuring the delay reduction of NM actions all the NM actions will add up to achieve the **NM RP2 objective of delivering additional operational benefits is of 10% en-route delay savings**. The percentage will be measured as the NM en-route delay savings over the total network en-route delay.

NM will develop the methodology for calculating and monitoring the delay savings in a transparent manner.

The ultimate objective is to bring additional benefits to performance achievement due to the specific and unique role of NM to trigger and take initiatives in the network management procedures. This will not be achieved without the involvement of all other actors. Day-to-day operations will focus on the wider network addressing the issues that impact the imbalances between demand and capacity, supporting the ANSPs and aircraft operators.

In RP1 the achieved annual en-route ATFM delay per flight for NM area was equal to or within 0.01 min/flight of the SES area result. Therefore NM set the same target for both NM and SES area. In doing so, the NM approach is consistent with the EU-wide targets defined in the Decision setting the Union-wide targets for RP2 2014/132/EU, by targeting the NM area we ensure that SES targets are also met. Both targets will be monitored throughout RP2.

The overall target is to ensure that the network capacity performance as expressed in the **En-route ATFM delay per flight key performance indicator is achieved for each year of the RP2 timeframe 2015-2019. The target is 0.50 min/flight and is applicable to SES area.**

In addition, the NM Objective is to achieve 0.50 min/flight for en-route ATFM delay for each year of RP2 for NM Area.

Based on the NOP forecasts for 2015-2019, the capacity plans of ANSPs collectively result in an annual delay/flight forecast above the performance target of 0.5 min/flt for each of the five years of the RP2. In addition the NOP forecast does not include disruptions (which amounted to 0.1 min/flt in 2013). This will make the achievement of the target very challenging.

NM will proactively monitor (in quasi real-time) traffic, delay and flight efficiency KPIs and, together with the affected operational stakeholders, will take timely action and specific targeted measures to correct any negative performance trend.

2.1.3.5 Airport capacity

The performance scheme introduced the **arrival ATFM delay per flight** performance indicator in RP2. There are no targets at the European level. However, as the States are required to set a target at the national level, NM will endeavour to support all the ANSPs to achieve their targets. In addition NM will directly deliver additional and tangible delay reduction benefits resulting from its network centric operations that will be monitored during RP2.

NM will address in RP2 the following actions and projects to address capacity issues at the airport, increase predictability and punctuality to contribute to the reduction of arrival delays:

- Mitigation of weather generated delays;
- Reduction of first rotation delays;
- Improvement of flight plan/airport slot consistency;
- Improve the airport integration into the network by supporting the implementation of A-CDM and Advance Tower thus increasing the proportion of traffic subject to DPI;
- Increase capacity at airports through Time Base Separation, application of RECAT-EU at major airports, deployment of Cooperative Traffic Management, including Target Time of Arrival;
- Improved airport surface traffic management (e.g. A-SMGCS planning/routing).

It is expected that all the NM actions will add up to achieve the NM RP2 objective of delivering additional operational benefits of 5% arrival delay savings. The percentage will be measured as the NM arrival delay savings over the total network ATFM arrival delays.

The methodology for calculating and monitoring the delay savings is similar with the en-route method (see 2.1.3.4 above).

Terminal ATFM delays

During monitoring of RP1 became evident that the interface between the en-route and airport delays was not always clearly defined when monitoring the terminal airspace. There is continuing work to better define these arrangements, as is the case with regulations applied in terminal airspace for the protection of an airport.

For these reasons NM will monitor throughout RP2 separately the delay attributable to terminal air navigation services.

2.1.3.6 Other NM activities contributing to achieving the capacity targets

Training
NM delivers network management training courses to over 1,300 participants per year. Courses cover network operations, airspace and capacity management and flight efficiency. They support directly NM's capacity enhancements initiatives. The central delivery of these unique courses ensures a cost-effective way to train the ATM community.

Crisis Management
The Network Manager, with the support of the EACCC, is responsible for coordinating the management of response to any type of network crisis in close cooperation with the corresponding structures in Member States. In addition to supporting the activation and coordination of contingency plans at Member State level, NM will elaborate mitigating measures at network level to secure the provision of a timely response to such network crises to protect and ensure the continued and safe operation of the network. NM is also tasked to coordinate response to major disruptions which do not lead to a crisis but nevertheless affect capacity and result in delay increases of more than 20%. [see NOP, section 5.8.1]

NM, with the support of its partners in expert organisations, ensures that the relevant information on the crises/major disruptions is shared via the NM Operations Portal, so contributing to the situational awareness and informed decisions by stakeholders.

There is no way of calculating the delay reduction benefit of the NM led activities related to averting, managing or mitigating impact of crisis situations in Europe. However, NM contributions to just one crisis or major disruption event per year in 2012, 2013 and 2014, at the level of a major volcano eruption or extreme weather, would bring delay reduction savings in the order of hundreds of thousands of minutes every year.

In 2013 NM started developing bulletins of risk assessment of ATM disruptions resulting from natural hazards to enable aviation partners in assessing risks of possible major disruptions or crises. Following a period of trial its deployment is planned in the first quarter of 2014.

2.1.3.7 Support to the implementation and monitoring of the local indicators for capacity

The NM is already publishing reports on the adherence to the ATFM slots as required by Article 11 of ATFM regulation. These statistics are available to stakeholders both on the ATFCM website and in the NM Interactive Reporting tool. NM will monitor the arrival and departure delays and the results will be available in the NM reports.

2.1.4 Cost-Efficiency

2.1.4.1 NM approach to cost efficiency

NM has controlled its costs/budget during RP1 and remained within the cost objectives of the NM performance plan whilst also delivering on its other performance areas. This was achieved by prudent cost management through:

- an annual NM work programme review and consultation with the NMB budget task force to ensure work is in line with NM functions, NSP, NOP and agreed priorities. The transparency of NM's costs/budget has matured over RP1 through working with the task force;
- review of expenditure requests through the year to ensure there is a solid business case;
- review of the HR plan to ensure NM has the right skills for the future work programme.

NM's strategy for achieving cost efficiency during RP2 is built on a number of principles.

- Optimising the NM work programme; the integration of a well identified area for the Strategic Network Projects in the NM work programme without increasing the overall NM cost. This will ensure that the resources for those projects are transparent whilst keeping the total cost of NM under control;
- Reviewing methods and organisation for delivering operations and services. As well as looking for internal cost efficiencies, NM also considers cost efficiencies for network parties particularly in the realm of network systems.;

- Finding synergies across Agency activities. For example, a complete review of the Office IT organisation to take full benefit of the synergies within the EUROCONTROL Agency. This will avoid duplications of effort in NM for IT Solutions already included in the overhead costs;
- Scrutiny of all NM costs, particularly those outside NM's direct control;
- Sharper financial management of NM assets. NM will investigate limiting investments leading to reduced depreciations during RP2. It is currently assumed that some software would be developed using investment credits. It is unsure if NM's accounting rules will allow this. Should that not be the case then depreciations will drop towards the end of RP2;
- Charging individual parties for work that is contributing to local performance. Where feasible UPP will be increasingly applied. NM has already started in areas like the Airports work programme to generate income. The estimates in the current profile of costs are conservative to avoid over estimating;
- Extending NM's geographical scope to third countries to create scale effects and reduce the cost per service units;
- The means for the identification of the full cost of individual NM functions and tasks are available through the detailed presentation of the NM work programme and budget.

NM is not subject to traffic risk in the same way as ANSPs. NM is aware of network cost efficiency targets and should traffic levels fall over RP2 and the industry has similar financial issues as 2008-2014, NM would reassess its contribution to network cost efficiency.

The NPP explains the main changes to the NM cost profile over RP2 to align with cost targets, which are based on the cost profile. The detail is provided in the NM work programme. NM presents its unit cost trend to provide a comparative value to ANSP unit costs.

2.1.4.2 Context and Assumptions

The chapters below present the profile of costs for the Network Manager during RP2.

The changes to the NM Implementing Rule were integrated, which leads to the following changes:

- The removal of the EAD;
- The inclusion of Safety related activities as described in the modified implementing rule (Identification of the operational safety hazards at network level and assess the associated network safety risk);
- The inclusion of activities related to the execution of the Network Strategy Plan, of the Network Strategic Projects and the relationship with the future Deployment Manager as of 2015;
- Inclusion of the SAFA tasks in the NM work programme.

The following assumptions have been used to construct the profile of costs for the Network Manager:

- The profile of cost is for the entire area covered by the Network Manager. Receipts have been planned where services are provided outside the EUROCONTROL area (such as e.g. Morocco). The Network Manager is of the opinion that technically costs could be separated between the 'NM area' and non-NM area. However this would not directly contribute to the cost efficiency and would not be a managerial tool to reduce cost;
- The profile of cost includes both the direct costs and the indirect costs. The indirect costs are planned to be 30% of the direct costs at the start of RP2. Cost efficiency measures are planned to reduce this % during RP2;
- The profile of cost is based on the current institutional setup of the Network Manager, including its current tax regime.

Should any of the assumptions change during RP2 then the profile of cost would have to be aligned to those changes.

2.1.4.3 NM cost efficiency measures implemented in the Profile of Cost

During RP2 the Network Manager will continue to implement all required measures to perform its functions in a cost effective manner. Driven by the annual review of the NM Work Programme NM has currently identified the following measures to address its cost efficiency.

A Revised Role of the OPS Room
A revised role of the OPS room and some support staff will be implemented to fully align the tasks of the staff with the tasks of the Network Manager. This will lead to a reduction of 36 FTE towards the end of 2015. To achieve this result a departure

scheme involving restructuring costs with benefits paid to staff will be implemented. The full details of the revised role are described in the paper "*Revision of the conditions of employment of NMD operational staff – Reorganisation of the NMD Network Operations and Technical Support Services*" (App./PC/14-08).

It is estimated that the restructuring will lead to total nominal savings of around 15MEURO by 2020 and annual savings in excess of 3.5 MEURO a year following this date.

The nominal savings (including corresponding savings on overhead costs) are:

OPS Room Reorg Savings	2015	2016	2017	2018	2019		FTE
Ops Room Reorg	329	1.548	2.139	2.979	3.180	Direct	36
Ops Room Reorg	99	464	642	894	954	Indirect	
Total	**428**	**2012**	**2781**	**3873**	**4134**		

The nominal restructuring costs (namely benefits paid to the employees) paid during RP2 are shown below. Those restructuring costs are already integrated in the savings presented above.

OPS Room Reorg Restructuring Costs.	2015	2016	2017	2018	2019	
Restructuring Cost	3.287	3.718	3.161	2.462	1.776	Direct

Right Sizing of the Safety Management Activities

NM will optimise the Safety Management activities after they have been included in the work programme of the Network Manager. This will lead to the following cost savings during RP2:

	2015	2016	2017	2018	2019		FTE
Safety Management	0	0	203	419	431	Direct	2
Safety Management			61	126	129	Indirect	
Total	**0**	**0**	**264**	**545**	**560**		**2**

Integration of the SAFA Activities at no increased cost

The reviewed NM Implementing Rule includes SAFA as one of the tasks of the Network Manager. The SAFA tasks were included without an increase of cost or budget. Those savings will be made at the start of RP2 and continue during the entire reference period.

	2015	2016	2017	2018	2019		FTE
SAFA Direct	150	150	150	150	150	Direct	
SAFA Indirect	50	50	50	50	50	Indirect	
Total	**200**	**200**	**200**	**200**	**200**		

Optimisation of the Business Partnering and PROC Activities

NM has integrated in its cost base the HR and Finance Business Partnering costs and some procurement costs. NM will optimise those activities during RP2. This will lead to the following cost savings during RP2:

	2015	2016	2017	2018	2019		FTE
Business Partnering & Proc	0	395	609	837	1.077	Direct	5
Business Partnering & Proc	0	119	183	251	323	Indirect	
Total	**0**	**514**	**792**	**1088**	**1400**		**5**

Reduction of Overhead Costs

NM will further reduce overhead costs during RP-2. The direct savings described above will lead to corresponding savings in overhead costs. In addition to those savings, the following savings will be made:

	2015	2016	2017	2018	2019		FTE
Reductions in Overhead		500	1.000	2.500	2.500	Indirect	

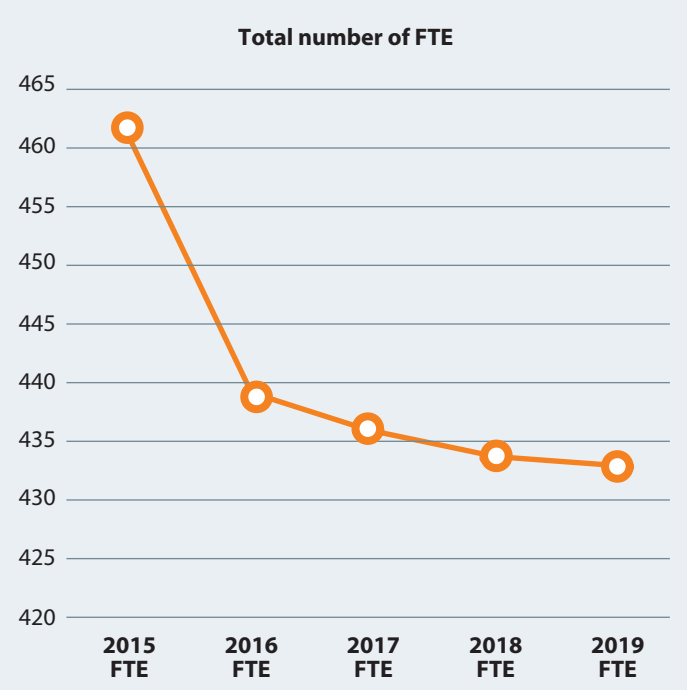
Summary of the cost efficiency measures implemented in the profile of costs

	2015	2016	2017	2018	2019		FTE
Direct	479	2093	3101	4385	4838	Direct	43
Indirect	149	633	936	3821	3956	Indirect	
Total	**628**	**2726**	**4037**	**8206**	**8794**		

The cost savings (nominal) of those actions shown above lead to a reduction of 43 Full Time Equivalents and a total nominal saving of 24.391KEURO to which the Network Manager is fully committed over RP2.

The profile of cost for NM includes the following evolution of Full Time Equivalents (FTE) during RP2:

It is NM's experience that the right balance must be found between internal staff and external expenditure (external assistance, outsourcing and/or other operating expenditure). Since the staff reductions in the period 2009-2014, where the staff was reduced from 512 to 478 FTE in RP1 and now further from 461 to 432 in RP2, NM should ensure the right balance between internal staff and operating expenditure. At various occasions, NM has planned credits for significant projects that failed to make sufficient progress due to the absence of skilled project managers or software architects with sufficient ATM knowledge.



2.1.4.4 Additional Management tools for managing the Profile of Costs

In addition to the measures already included in the Profile of Costs, the Network Manager will employ the following management tools for managing the Profile of Costs:

Cost efficient network systems:

- Make or buy decisions reducing the total life-cycle cost for systems development and maintenance. Examples are the strategic outsourcing of software development;
- All software and infrastructure developments will increasingly be integrated in one organisation, avoiding duplications of effort. Examples are the integration of the PRISME infrastructure in the NM systems;
- Modernisation of the data communication infrastructure to fully take advantage of the IP network for ATM applications whilst removing obsolete but costly ground/ground telecommunication applications;
- Reduce systems development and maintenance cost in NM to take advantage of commercial of the shelf or de-facto standard products available on the market;
- Continued review of the software and systems development to achieve the right balance between the 'run' and 'growth' activities. This will ensure that appropriate resources are available to maintain legacy systems whilst make best use of the available resources to evolve or develop NM system in line with the requirements of the NSP;
- Modernisation of the data communication infrastructure to fully take advantage of the IP network for ATM applications whilst removing obsolete but costly ground/ground telecommunication applications.

Efficiencies will be seen in:

- Infrastructure: there is a target of 5 to 10% annual savings in infrastructure costs through reviewing contracts and partnerships and / or introducing new technologies. For example, as part of the IT roadmap, moving from proprietary hardware to standard Intel X86 HW and open source Linux OS, and recently introducing virtualization of all OPS platforms, significant savings (including environmental footprint & energy consumption) were made;

- n-CONECT program:

  Single HMI for NM and its Operational stakeholders
  - NM will save costs through easy to introduce new functionalities on a common platform and NM users will not need to develop local tools;
  - Indirect overall cost reduction via the simplification of operational processes, enhanced collaboration leading to better network efficiency;
  - Another gain with the real-time information sharing with all actors, same information leading to a more efficient decision making.

  B2B Web Services
  - New technology and use of mainstream open standards, Internet technologies, for interoperability leads to cost reduction for the end-users to connect to the NM platforms (easy to implement and maintain);
  - B2B allows direct integration of NM data in local tools, leading to local process simplification and more efficient and comprehensive services;
  - Some users wish to use standards Internet technologies to replace their existing expensive AFTN connection and interface with NM (e.g. airport DPI's).

- Process Maturity: by implementing standard industry processes and increasing the maturity of the organisation (CMMI certification level 3), significant savings can be achieved by improving the predictability of the software delivery to operations (moved from 18 months release cycle to yearly release cycle with intermediate releases) and also to decrease the cost to rework (maintenance cost). As well, NM will be better placed to meet the safety regulatory specifications;

- Scarce resources: develop and maintain automated tools for the management of scarce resources, reducing the need for human intervention will provide cost efficiencies for all parties.

2.1.4.5 Profile of Cost

Nominal Values

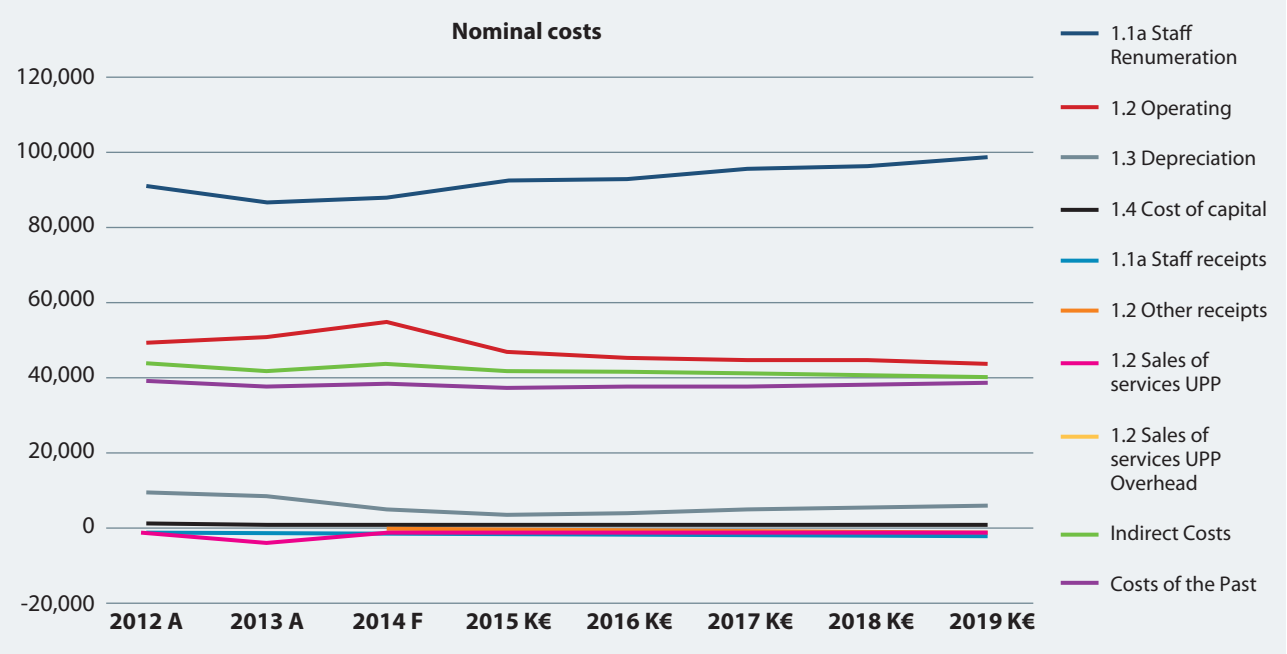
The resulting cost in Nominal terms for NM for 2012-2019 is:

NM Cost (nominal)	2012 A	2013 A	2014 F	2015 K€	2016 K€	2017 K€	2018 K€	2019 K€
Grand Total	**229.516**	**218.857**	**225.569**	**216.810**	**217.045**	**218.126**	**220.360**	**223.561**

The table below presents the NM costs broken down in the various cost categories.

NM Cost (nominal)	2012 A	2013 A	2014 F	2015 K€	2016 K€	2017 K€	2018 K€	2019 K€
1.1a Staff Remuneration	90.858	86.332	87.848	91.883	93.189	94.725	96.360	98.927
1.2 Operating	48.748	50.570	55.161	45.609	44.693	43.656	43.873	43.366
1.3 Depreciation	8.722	7.756	4.296	3.587	3.521	3.996	4.773	5.158
1.4 Cost of capital	478	344	283	252	381	441	473	487
1.1a Staff Receipts	-962	-952	-934	-974	-1.005	-1.025	-1.046	-1.087
1.2 Other Receipts			-1.136	-1.140	-1.393	-1.643	-1.643	-1.643
1.2 Sales of services UPP	-1101	-3415	-1624	-913	-839	-842	-848	-848
1.2 Sales of services UPP Overhead	-330	-1024	-488	-273	-252	-252	-254	-254
Indirect Costs	43.923	41.884	43.656	41.767	41.323	41.045	40.338	41.064
Future Costs Total	**190.335**	**181.495**	**187.062**	**179.798**	**179.618**	**180.101**	**182.026**	**185.170**
Costs of the Past	39.181	37.361	38.507	37.012	37.427	38.025	38.334	38.391
Grand Total	**229.516**	**218.857**	**225.569**	**216.810**	**217.045**	**218.126**	**220.360**	**223.561**

The graph below presents the NM costs broken down in the various cost categories. The cost efficiency measures described above are included in those figures.



For a fuller picture of the Network Manager costs it is necessary to allocate parts of the pension costs currently in charge of Part I of the Agency budget to the Network Manager.

Part I of the budget contains the following cost categories not currently allocated to NM:

- Cost of the Early Termination Scheme. This includes the cost of staff benefiting from the ETS until the date of their pension;
- Cost of the Pensions charged to the budget. This includes all pensions of pensioners before 2005 and the fiscal adjustment of all pensioners;
- PBO - that is States' contribution to the Pension Fund.

The proportion of staff currently employed for the Network Manager compared to the total number of staff is 25.37%. This proportion of nominal pension costs is shown in the table below.

Pension Cost (Nominal)	2015 K€	2016 K€	2017 K€	2018 K€	2019 K€
ETS	5.324	4.566	3.968	3.128	2.133
Pensions	21.698	22.751	23.825	24.852	25.779
PBO	9.990	10.111	10.232	10.355	10.479
Total allocated to NM	**37.012**	**37.427**	**38.025**	**38.334**	**38.391**

Real Values

The resulting cost in real terms 2012 prices for NM is:

NM Cost (real terms 2012 prices)	2012 A	2013 A	2014 F	2015 K€	2016 K€	2017 K€	2018 K€	2019 K€
Total costs in real terms	229.516	215.610	219.005	207.535	204.670	202.492	201.295	200.953
Year on year evolution in %n/n-1	0.00%	-6.06%	1.57%	-5.24%	-1.38%	-1.06%	-0.59%	-0.17%

The table below presents the NM costs broken down in the various cost categories.

NM Cost (real)	2012 A	2013 A	2014 F	2015 K€	2016 K€	2017 K€	2018 K€	2019 K€
1.1a Staff Remuneration	90.858	85.052	85.292	87.952	87.876	87.936	88.023	88.923
1.2 Operating	48.748	49.820	53.556	43.658	42.145	40.527	40.077	38.981
1.3 Depreciation	8.722	7.641	4.171	3.434	3.320	3.710	4.360	4.636
1.4 Cost of capital	478	339	274.765	241.22	359.277	409.391	432.076	437.752
1.1a Staff Receipts	-962	-938	-906.82	-932.33	-948	-952	-956	-977
1.2 Other Receipts		0	-1.103	-1.091	-1.314	-1.525	-1.501	-1.477
1.2 Sales of services UPP	-1101	-3.364	-1576.7	-873.94	-791.16	-781.65	-774.63	-762.25
1.2 Sales of services UPP Overhead	-330	-1.009	-473.8	-261.32	-237.63	-233.94	-232.02	-228.31
Indirect Costs	43.923	41.262	42.386	39.980	38.967	38.103	36.848	36.911
Future Costs Total	**190.335**	**178.803**	**181.619**	**172.107**	**169.377**	**167.192**	**166.277**	**166.445**
Costs of the Past	39.181	36.807	37.387	35.429	35.293	35.300	35.017	34.509
Grand Total	**229.516**	**215.610**	**219.005**	**207.535**	**204.670**	**202.492**	**201.295**	**200.953**

The proportion of pension costs in real terms is shown in the table below.

Pension Cost (Real Prices)	2015 K€	2016 K€	2017 K€	2018 K€	2019 K€
ETS	5.096	4.306	3.684	2.857	1.917
Pensions	20.770	21.454	22.117	22.702	23.172
PBO	9.563	9.535	9.499	9.459	9.419
Total allocated to NM	**35.429**	**35.293**	**35.300**	**35.017**	**34.509**

2.1.4.6 NM cost efficiency targets in RP2

The cost efficiency target for RP2 for NM is based on the total cost profile as expressed in the table below.

NM Cost (nominal)	2015 K€	2016 K€	2017 K€	2018 K€	2019 K€
Grand Total	**216.810**	**217.045**	**218.126**	**220.360**	**223.561**

Using the management practice outlined in section 2.1.4.4. NM will manage the individual costs shown in the table below as means to achieve the cost efficiency target for RP2.

NM Cost (nominal)	2015 K€	2016 K€	2017 K€	2018 K€	2019 K€
1.1a Staff Remuneration	91.883	93.189	94.725	96.360	98.927
1.2 Operating	45.609	44.693	43.656	43.873	43.366
1.3 Depreciation	3.587	3.521	3.996	4.773	5.158
1.4 Cost of capital	252	381	441	473	487
1.1a Staff Receipts	-974	-1.005	-1.025	-1.046	-1.087
1.2 Other Receipts	-1.140	-1.393	-1.643	-1.643	-1.643
1.2 Sales of services UPP	-913	-839	-842	-848	-848
1.2 Sales of services UPP Overhead	-273	-252	-252	-254	-254
Indirect Costs	41.767	41.323	41.045	40.338	41.064
Future Costs Total	**179.798**	**179.618**	**180.101**	**182.026**	**185.170**
Costs of the Past	37.012	37.427	38.025	38.334	38.391
Grand Total	**216.810**	**217.045**	**218.126**	**220.360**	**223.561**

For consistency reasons and in order to enable the comparison with the determined unit cost, the table with the total cost profile and the individual cost components expressed in real terms is presented below.

NM Cost (real)	2012 A	2013 A	2014 F	2015 K€	2016 K€	2017 K€	2018 K€	2019 K€
1.1a Staff Remuneration	90.858	85.052	85.292	87.952	87.876	87.936	88.023	88.923
1.2 Operating	48.748	49.820	53.556	43.658	42.145	40.527	40.077	38.981
1.3 Depreciation	8.722	7.641	4.171	3.434	3.320	3.710	4.360	4.636
1.4 Cost of capital	478	339	274.765	241.22	359.277	409.391	432.076	437.752
1.1a Staff Receipts	-962	-938	-906.82	-932.33	-948	-952	-956	-977
1.2 Other Receipts		0	-1.103	-1.091	-1.314	-1.525	-1.501	-1.477
1.2 Sales of services UPP	-1101	-3.364	-1576.7	-873.94	-791.16	-781.65	-774.63	-762.25
1.2 Sales of services UPP Overhead	-330	-1.009	-473.8	-261.32	-237.63	-233.94	-232.02	-228.31
Indirect Costs	43.923	41.262	42.386	39.980	38.967	38.103	36.848	36.911
Future Costs Total	**190.335**	**178.803**	**181.619**	**172.107**	**169.377**	**167.192**	**166.277**	**166.445**
Costs of the Past	39.181	36.807	37.387	35.429	35.293	35.300	35.017	34.509
Grand Total	**229.516**	**215.610**	**219.005**	**207.535**	**204.670**	**202.492**	**201.295**	**200.953**

To allow comparison with the Union-wide target expressed in determined unit costs, the table below presents the resulting unit costs in equivalent UC/DUC for each year:

	2012 A	2013 A	2014 F	2015 K€	2016 K€	2017 K€	2018 K€	2019 K€
Total en route actual/ forecast costs in real terms (in EUR at 2012 prices)	229.516	215.610	219.005	207.535	204.670	202.492	201.295	200.953
Real en route UCs/DUCs (in EUR at 2012 prices)	2.18	2.02	1.99	1.82	1.75	1.69	1.64	1.59
Trend in real en route UCs/DUCs (in €2012 prices) %n/n-1		-7.5%	-1.5%	-8.2%	-4.2%	-3.5%	-3.0%	-2.9%

The table below shows the inflation and service unit assumptions used for the DUC calculation above.

	2012 A	2013 A	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F
Inflation	2.5%	1.51%	1.47%	1.43%	1.51%	1.58%	1.63%	1.63%
Statfor en-route service units (K) forecast (baseline)	105.180	106.866	110.204	113.754	117.081	119.995	122.940	126.397

The sources for the inflation actual and forecast levels are:

- IMF consumer price euro area – April 2014

The source for the service units is the STATFOR Service Unit Forecast from September 2013.

2.2 Performance targets in each relevant key performance area, set by reference to each relevant key performance indicator, for the entire reference period, with annual values to be used for monitoring and incentive purposes

2.2.1 Safety

EoSM: Effectiveness of Safety Management

The Network Manager will aim at reaching by 2019 the same safety maturity level as the ANSPs.

The NM target for 2019 is to achieve at least Level D in the Management Objectives 'safety policy and objectives', 'safety risk management', 'safety assurance', 'safety promotion' and at least Level C in the Management Objective 'safety culture' for its own Safety Management System.

The annual values set for the EoSM indicator are:

	2015	2016	2017	2018	2019
EoSM: Effectiveness of Safety Management	Level C in all MOs	Level D in 40% of MOs	Level D in 60% of MOs	Level D in 80% of MOs	Level C in Safety Culture and Level D in the other MOs

In addition the Network Manager will support the ANSPs reach their safety maturity target for their own SMSs.

Severity Classification: Application of the RAT Methodology

The EU-wide target for the application of RAT by Service Providers is to apply RAT methodology for severity classification for all reported occurrences (separation minima infringements, runway incursions and ATM specific events). Scoping the type of occurrences that could be reported within the scope of the NM activities, they are related to the ATM specific occurrences, more specific occurrences related to the inability to provide ATFM function. Therefore the Network Manager will aim at reaching by 2019 the same target as the ANSPs for its own reported ATM specific occurrences.

The NM target for 2019 is to apply RAT methodology for severity classification for all ATM specific occurrences reported through its SMS.

The annual values set for the RAT indicator are:

	2015	2016	2017	2018	2019
Application of **RAT**	Implemented in SMS	RAT applied for 80% of occurences	RAT applied for 90% of occurences	RAT applied for all occurences	RAT applied for all occurences

In addition the Network Manager will ensure all the necessary support:

- for the further development of the RAT methodology and appropriate guidance material in close coordination with the stakeholders;
- to provide appropriate tools to ensure the harmonised implementation of RAT and reporting of the results of its application;
- for the implementation of the RAT methodology by the ANSPs.

2.2.2 Environment

KEP: The average horizontal en-route flight efficiency of the last filed flight plan

The NM target is fully consistent with the EU-wide environment performance target for the KEP key performance indicator. The NMOC (ATFM function) supports this and NSP objective SO4 directly.

The NM intermediate targets are derived from a linear distribution from the achieved value in 2013 for SES and NM area, which are 5.11% and 4.86% respectively. This translates in an annual reduction of around 0.17 pp throughout RP2 (see 2.1.2 for more info)

Note: *The calculation of the KEP in RP2 is aligned with the PRB method, which is different from the one used by NM in RP1 to monitor the RTE-FPL indicator. Therefore the comparison of absolute values between RP1 NMPP and the RP2 NPP is not possible.*

The 2019 NM target for route extension due to last filed flight plan (KEP) is 4.1% for SES area and NM objective is 3.82% for NM area.

The annual values set for the KEP indicators are.

	2015	2016	2017	2018	2019
KEP SES area	0.17 pp reduction	0.17 pp reduction	0.17 pp reduction	0.17 pp reduction	0.17 pp reduction = 4.1%
	4.78%	4.61%	4.44%	4.27%	4.1%
KEP NM area	0.17 pp reduction	0.17 pp reduction	0.17 pp reduction	0.17 pp reduction	0.17 pp reduction = 3.82%
	4.51%	4.34%	4.17%	3.99%	3.82%

This target is challenging. The close interdependency between capacity and flight efficiency and operating costs means that it is difficult to predict the evolution of this KPI.

The role of airlines in the overall environment performance area is important, in order for the airspace users "who remain responsible for flight plan route choices" to use all the possibilities of the airspace design improvements.

The NOP and ERNIP describe the detailed plans and required actions both at ANSP, FAB and network level required to achieve the environment performance targets

The NM airspace utilisation actions addressing environment/flight efficiency are (see 2.1.2 for details):

- NM initiated a number of flight efficiency saving initiatives as part of the FE Programme;
- Increase the availability and usage of CDRs (separate indicators) in collaboration with airspace users who remain responsible for flight plan route choices;
- Increase RAD utilisation by reducing route unavailability such as restrictions, opening times.

These initiatives are outlined in Section 5.3 of the Network Operations Plan.

The NM initiated Flight Efficiency Initiative (strategic and tactical actions, the invalid IFPS queue is treated by IFPS staff, opportunity for a better utilisation of CDR 2, the most penalising city pairs etc) will be monitored and the objective is to achieve the following objective (measured as percentage of the savings required to achieve the annual 0.17 pp reduction each year, e.g. approximate 2000 NM / day in 2015). More effort is required at the beginning of RP2 (2015-2016) to catch up with the slower improvement of KEP in RP1.

	2015	2016	2017	2018	2019
NM direct savings for KEP	10%	10%	5%	5%	5%

KEA: The average horizontal en-route flight efficiency of the actual trajectory

The NM target is fully consistent with the EU-wide environment performance target for the KEA key performance indicator. The NM intermediate targets are derived from a linear distribution from the achieved value in 2013 for SES and NM areas, which are 3.12% and 3.14% respectively. This translates in a reduction of 0.09 pp average per year in that period for both SES and NM areas.

The 2019 NM target for route extension of the actual trajectory (KEA) is 2.6% for SES area and NM objective for KEA is 2.6% for NM area.

The annual values set for the KEA indicator are:

	2015	2016	2017	2018	2019
KEA	0.09 pp reduction	0.09 pp reduction	0.09 pp reduction	0.09 pp reduction	0.09 pp reduction = 2.6%
	2.96%	2.87%	2.78%	2.69%	2.6%

The NM will continue to support the ANSPs in the implementation of Free Route Airspace to enable the target achievement.

2.2.3 Capacity

ENR-DLA: en route ATFM delay per flight

In line with the PRB recommendation in the final report on Union-wide performance targets in RP2, the Network Manager has taken responsibility for the Union-wide capacity performance.

The NM target is fully consistent with the EU-wide capacity performance target for the en-route ATFM delay per flight indicator. The NM ATFM function (and others) supports this directly.

The 2019 NM target for en-route ATFM delay per flight (ENR-DLA) is 0.5 minutes/flight for SES area and NM objective for ENR_DLA is 0.5 minutes/flight for NM area.

The annual values set for the en-route delay indicator are.

	2015	2016	2017	2018	2019
Minutes of en-route ATFM delay per flight	0.5	0.5	0.5	0.5	0.5

Based on the NOP forecasts for 2015-2019, the capacity plans of ANSPs collectively result in an annual delay/flight forecast above the performance target of 0.5 min/flt for each of the five years of the RP2. In addition the NOP forecast does not include disruptions (which amounted to 0.1 min/flt in 2013). This will make the achievement of the target very challenging.

In addition, NM's second objective for en-route delays is to deliver additional operational benefits. Specific objectives have been set, where possible, for the NM delay reduction initiatives (detailed in section 2.1.3.3) listed below:

- Weekend delays;
- Individual flight penalties;
- Increase ATFCM measures efficiency;
- Mitigation of weather generated delays;
- Reduction of first rotation delays.

It is expected that, based on existing methods of measuring the delay reduction of NM actions all the NM actions will add up to achieve the **NM RP2 objective of delivering additional operational benefits of 10% en-route delay savings.** The percentage will be measured as the NM en-route delay savings over the total network en-route delay.

The annual values set for the NM en-route delay saving indicator are.

	2015	2016	2017	2018	2019
Percentage of NM en-route ATFM delay savings	10%	10%	10%	10%	10%

The additional benefits coming from the NPP cannot be achieved without the strong involvement and commitment of all operational actors through the NM CDM.

ARR-DLA: arrival ATFM delay per flight

The average minutes of arrival ATFM delay per flight attributable to terminal and airport air navigation services and caused by landing restrictions at the destination airport is not a key performance indicator in RP2.
The NM will monitor the arrival ATFM delays attributable to airport air navigation services at network level.

NM objective for arrival delays is to address a number of actions that are expected to add up to achieve the NM RP2 objective of delivering additional operational benefits of 5% arrival delay savings. The percentage will be measured as the NM arrival delay savings over the total network ATFM arrival delays.

A summary of these actions is presented below (see details in section 2.1.3.3):

- Mitigation of weather generated delays;
- Reduction of first rotation delays;
- Improvement of slot usage at airports;
- NM will continue to support the implementation of A-CDM at airports critical to the network, to achieve 42 A-CDM airports by 2019;
- This will achieve a proportion of 60% traffic subject to DPI;
- Support the implementation of Advanced Tower airports, reaching 50 airports by end of RP2;
- Others:
  - 10 Airport operations Centres/APOC airports (with intermediate improvements through e.g. our winter weather trial);
  - Time Based Separation (TBS) deployment (5 airports);
  - RECAT-EU deployment (5 airports).
- Deployment of CTM, including Target Time of Arrival;
- Improved airport surface traffic management (e.g. A-SMGCS planning/routing) (10 airports).

The annual values set for the NM arrival delay saving indicator are:

	2015	2016	2017	2018	2019
Percentage of NM ATFM arrival delay savings	5%	5%	5%	5%	5%

Furthermore, in addressing NSP objective SO6 and the further integration of airport operations into network operations, NM will support airports to deliver performance based on their individual capacity plans and targets. The NM initiatives addressing airport capacity and their expected benefit are detailed in the Network Operations Plan.

2.2.4 Cost Efficiency

The cost efficiency target for RP2 for NM is based on the total cost profile as expressed in the table below.

NM Cost (nominal)	2015 K€	2016 K€	2017 K€	2018 K€	2019 K€
Grand Total	216,810	217,045	218,126	220,360	223,561

Using the management practice outlined in section 2.1.4.4, NM will manage the individual costs shown in the table below as means to achieve the cost efficiency target for RP2.

NM Cost (nominal)	2015 K€	2016 K€	2017 K€	2018 K€	2019 K€
1.1a Staff Remuneration	91,883	93,189	94,725	96,360	98,927
1.2 Operating	45,609	44,693	43,656	43,873	43,366
1.3 Depreciation	3,587	3,521	3,996	4,773	5,158
1.4 Cost of capital	252	381	441	473	487
1.1a Staff Receipts	-974	-1,005	-1,025	-1,046	-1,087
1.2 Other Receipts	-1,140	-1,393	-1,643	-1,643	-1,643
1.2 Sales of services UPP	-913	-839	-842	-848	-848
1.2 Sales of services UPP Overhead	-273	-252	-252	-254	-254
Indirect Costs	41,767	41,323	41,045	40,338	41,064
Future Costs Total	**179,798**	**179,618**	**180,101**	**182,026**	**185,170**
Costs of the Past	37,012	37,427	38,025	38,334	38,391
Grand Total	**216,810**	**217,045**	**218,126**	**220,360**	**223,561**

To allow comparison with the Union-wide target expressed in determined unit costs, the table below presents the resulting unit costs in equivalent UC/DUC for each year.

	2012 A	2013 A	2014 F	2015 K€	2016 K€	2017 K€	2018 K€	2019 K€
Total en-route actual/forecast costs in real terms (in EUR at 2012 prices)	229,516	215,610	219,005	207,535	204,670	202,492	201,295	200,953
Real en-route UCs/DUCs (in EUR at 2012 prices)	2.18	2.02	1.99	1.82	1.75	1.69	1.64	1.59
Trend in real en-route UCs/DUCs (in €2012 prices) %n/n-1		-7.5%	-1.5%	-8.2%	-4.2%	-3.5%	-3.0%	-2.9%

2.3 Description and explanation of the contribution and impact of the performance targets on the European Union-wide performance targets

The NM approach is to appropriate the EU-wide targets set in the Commission Implementing Decision setting the Union-wide targets for RP2 and apply them to the NM area whenever this was possible (i.e. data is available to monitor those indicators for the entire NM area). This will achieve two separate goals:

- NM is actively contributing, either directly or by supporting its stakeholders, to achieve the performance targets of the RP2;
- Provides a pan-European dimension to the performance scheme, by applying the same quantitative targets and objectives not only to SES area but to the European-wide area (see section 1.1 for detailed scope of the NPP).

2.4 Description of the contribution and impact of the performance targets on Functional Airspace Blocks

By improving the cooperation between the NM and the FABs the objective is to support FABs in improving their performance and therefore the network performance.

NM will support FABs in reaching their performance targets during RP2 by ensuring consistency between performance plans, the NSP and NOP at ANSP, FAB and NM level.

NM will take the following actions to achieve a better cooperation with the FABs:

- continue to provide expert involvement in all FAB working groups to facilitate the development of plans and their implementation;
- provide guidance on the elaboration of the local and FAB operational and performance plans, to ensure consistency between those and the NSP and the NOP; include FAB specific issues in all NM CDM processes, as part of the overall development of the NOP;
- ensure network prioritisation of airspace projects to synchronise network developments and to grant network interconnectivity.

A number of areas for cooperation between the NM and FABs were identified and working arrangements will be set-up with the support of NDOP and NMB. These areas include:

- elaboration/harmonisation of network and regional operational concepts;
- development/harmonisation of various airspace projects based on network priorities;
- development of enhanced ASM/ATFCM processes at FAB level and with NM;
- harmonised capacity planning and measurement of operational performance;
- supporting the resolution of ATCO shortages at FAB level;
- strengthening of technical area coordination at FAB level and addressing intra FAB technical interoperability and in particular with NM systems.

As a result of the above, work will continue at full speed between the various areas of expertise of the Network Manager and the FABs. The main focus over the next period will cover all areas listed above with best practices being actively developed between the Network Manager and the FABs in the following areas:

- deployment of cross-border Free Route Airspace;
- enhanced ASM/ATFCM process at FAB level;
- gradual development of RAD at FAB level;
- coordination of airspace projects at FAB level;
- coordination of transition plans at FAB level;
- inclusion of FAB plans in the NOP.

3 CONTRIBUTION OF EACH FUNCTION

3.1 Individual performance targets for each function (ATFM, ERND, SSR transponder codes, frequencies)

The NM functions defined in the ATM Network function regulation EC 677/2011 dated 7/07/2011 are route network design, ATFM function and scarce resources. NM has also direct responsibilities in regard the network crisis management.

3.1.1 Route Network Design function supports directly the achievement of flight efficiency.

NM is seeking to further improve the design of the route network and airspace structure by balancing the airspace capacity and the flight efficiency. NM is thus proposing an additional performance indicator to measure the effectiveness of the airspace structure: **DES - route extension due to airspace design**

The timely implementation of the airspace design initiatives in RP1 led to a favourable evolution of this indicator in RP1. By August 2013 the route extension due to airspace design already met the 2013 target of 2.85% and improved by 0.65 percentage points between 2009 baseline year and 2013.

NM will work with its stakeholders on a number of airspace design packages, including cross-border airspace design initiatives that will provide flight efficiency benefits for the reduction of the route extension: development and implementation of airspace changes, airspace solution for most penalising city pairs in Europe, further developments of the night route network, further developments of the CDR network, including CDR harmonisation initiatives.

In RP2 the NM will extend the scope of the flights that are considered for the calculation of this indicator to all flights originating, departing or transiting the NM area, including the long haul flights. In addition the methodology of calculating the DES indicator will be aligned with the one calculating the KEP indicator. For these reasons the absolute values of this indicator will change from RP1 to RP2. As the changes in the NM system will become effective in March 2014, there is not enough time to build a baseline before the start of RP2 and derive an absolute figure as the target for DES indicator. Therefore the target is defined as a percentage point (pp) reduction from a reference value of 2012.

The NM approach for setting the target for this indicator is similar with the EC/PRB approach for the KEA indicator, i.e. a reduction of 0.57 pp between 2012 and 2019. The planned annual reduction for DES is not constant throughout the period:

the NM approach is to reach higher gains of 0.15 pp per year for 2013 and 2014 (as per the target in NMPP), while the average reduction for the 2015-2019 period is 0.06 pp for 2015 and 2016 and 0.05 pp per year for 2016-2019.

3.1.2 ATFM function supports directly the achievement of flight efficiency and network capacity. As such its performance indicators are **route extension due to last filed flight plan and en-route ATFM delay per flight.** See the targets set out in Sections 2.2.2 and 2.2.3.

3.1.3 The Radio Frequency Function (RFF) contributes to network capacity by ensuring the optimum usage of aeronautical radio frequencies aligned with the airspace design and navigation requirements in order to meet capacity requirements. In addition, the RFF will allow a common equitable sharing of the 8.33 kHz expansion benefit, contributing to the Network capacity and performances. The RFF contributes also to safety minimising the impact of interferences.

NM performance indicators for the RFF functions in RP2 are:

- Number of Radio Interferences; this KPI measures the number of reported radio frequency interferences that have not been closed six months after the first report;
- Number of Unsatisfied Requests; this KPI reports the number of unsatisfied radio frequency requests at a specific moment in time (total number and percentage);
- Average Time to Satisfy a Request; this KPI reports the average time required to satisfy frequency requests at a specific moment in time (plus the minimum and maximum number of days required).

The NM objective for RP2 is to prevent the increase of the number of Unsatisfied Requests.
The NM objective for RP2 is to reduce the average time to satisfy frequency requests.

3.1.4 Transponder Code Function (TCF)

The Transponder Code Function (TCF) contributes to improving safety by seeking to eliminate SSR transponder code conflicts and consequently reducing flight correlation errors while ensuring unique aircraft identification. At the same time TCF aims to reduce the overall number of code changes and as such contribute to the reduction of controllers' and pilot's workload related to these tasks.

The CCAMS capability was deployed in December 2011 and the first central code assignment took place in February 2012. By the end of 2013 twelve ANSPs were using CCAMS.

The TCF performance indicators and the associated objectives have been developed and agreed in cooperation with the NM operational stakeholders.

a) TCF safety related performance indicators

The performance indicators addressing the safety of SSR transponder codes usage are related to systemic errors, and are to be interpreted in close conjunction with the process of SSR transponder code allocation to States. The two performance indicators that will be monitored in this context are:

- The number of reported code conflicts generated by the SSR transponder code allocations to States;
- The number of reported unplanned shortfalls (e.g. Code shortages) generated by the SSR transponder code allocations to States.

As such the NM objective is to ensure that for RP2 the code allocation to States does not induce any negative effects for operations.

The NM objective for RP2 is to eliminate code conflicts generated by SSR transponder codes allocations to States.

The NM objective for RP2 is to eliminate unplanned shortfalls (e.g. code shortages) generated by SSR transponder codes allocations to States.

NM is responsible for the operation of CCAMS and the correct assignment of SSR transponder codes on behalf of CCAMS users. CCAMS is required to assign codes in accordance to the SSR transponder codes allocated for its use by States, and reflected in the Code Allocation List (CAL). Any deviation has the potential to generate a code conflict in one of the CCAMS States, or in a third party's area of responsibility.

The NM objective for RP2 is to ensure that CCAMS does not assign any wrong SSR transponder code for CCAMS managed flights.

b) TCF efficiency related indicators

The efficiency of SSR transponder code allocations to States is reflected in the number of code changes. The NM aims at reducing constantly the daily number of required code changes by optimising the code allocations. The same objective is supported by deployment of technology in support of code management (e.g. Mode S, CCAMS, etc.). The reference for the number of code changes is summer 2012.

The NM objective is to reduce in partnership with operational stakeholders the daily number of required code changes by 50% over RP2.

3.1.5 Crisis Management

NM IR sets out that the NM, with the support of the EACCC, shall be responsible for:

- coordinating the management of response to the network crisis, in accordance with the EACCC Rules of Procedure, involving close cooperation with corresponding structures in Member States and
- supporting the activation and coordination of contingency plans at Member State level.

Therefore, the NM will continue to establish close links with crisis management structures in States and in particular with State Focal Points for aviation crisis management.

The NM objective for RP2 is to provide EACCC Focal Points in all States with basic training on their role and possible interactions between their national crisis management structures and NM/EACCC.

4 MILITARY DIMENSION

4.1 Description of the civil-military dimension of the Plan describing the performance of Flexible Use of Airspace application in order to increase capacity with due regard to military operation effectiveness, and if deemed appropriate, relevant performance indicators and targets consistent with the indicators and targets of the Performance Plan

Military authorities are an important CDM partner of NM influencing all performance areas due to their different role and type of operation. Effective CDM processes have allowed airspace design projects to take due account of military airspace needs, facilitated the introduction of better and targeted Conditional Routes and enabled more efficient utilisation of military use airspace and the ATM route network.

FUA helps in increasing capacity and in a more efficient and better use of capacity as follows:

1. Better use of military airspace in designing the airspace structures to ensure deconfliction of routes and better sectorisation;
2. Definition of re-routing scenarios based on CDRs to address capacity/demand imbalances, thus reducing delays;
3. Harmonisation of availability of civil/military airspace structures to improve traffic predictability;
4. Increased strategic or tactical availability for civil traffic of civil/military structures in capacity constrained areas.

A number of projects and work packages are defined to deliver capacity and flight efficiency improvements in RP2 to support the achievement of the RP2 targets, both at network and local/FAB level. They focus on the implementation of improved ASM/ATFCM processes and on the Advanced Flexible Use of Airspace concept, combining operational procedures and technical systems support.

Rolling ASM/ATFCM process and response

This Key Deliverable focuses on airspace improvements, in coordination with all appropriate operational and military stakeholders. It ensures a continuous, seamless and reiterative planning, allocation and operational deployment of optimum airspace configurations, based on airspace request at any time period within both pre-tactical Level 2 and tactical Level 3. It will result in a rolling process, supporting the enhancement of the daily Network Operations Plan. This will allow airspace users to better take benefit from changes in airspace structures in real-time.

Dynamic Airspace Configuration & CDM

This Key Deliverable focuses on defining a reference Dynamic Airspace Configuration concept, including roles and responsibilities in an advanced CDM process. It will work in close cooperation with SESAR for supporting validation activities and identifying improvements mature for implementation.

ASM Solutions

The ASM solutions process is aimed at delivering ASM options that can help alleviating capacity problems identified in any particular area of European airspace as well as improve flight efficiency ensuring synchronised availability of airspace structures according to traffic demand.

ASM in FRA environment

This Key Deliverable addresses the required improvements supporting an efficient ASM within a FRA environment. The definition of improvements required will be further developed on the experience of current operations and the need to deploy cross-border operations and final European-wide FRA. It will require a revision of the current ASM procedures, as well as improved coordination and support for the military partners for the switch from fixed route structures to full large scale FRA operations. This also includes working out requirements and guidance material for flight planning procedures, processes and system requirements (CFSPs and IFPS) needed to support large scale FRA operations.

FUA - Availability and use of the Conditional Routes

Flight efficiency requires a route network design that offers the most direct routing opportunities to airspace users and the active commitment of the users to fully exploit the available network. NMOC provides additional direct flight efficiency benefits via automated notification of opportunities for airspace users following publication of the daily AUP. NM will

proactively engage with airspace users to ensure maximum usage of all opportunities. More proactive strategies will be followed as a priority to improve the civil/military CDM processes in areas where military mission effectiveness is constrained or availability and effective usage of the CDR1/2 network is unnecessarily restricted.

The improvement of the conditional route (CDR) utilisation will be captured in RP2 by the rate of planning of Conditional Routes (CDR-RAI) and the effective use of Conditional Routes (CDR-RAU) indicators.

The CDR-RAI and CDR-RAU indicators are defined in details in the ASM Handbook Section 7.

Although these are only performance indicators in RP2 and do not have a target associated with them, NM will set for itself the following objectives to be met in RP2.

As the RP1 values for CDR planning and usage are already high, NM is seeking a further improvement of these indicators by 5% during RP2 (2019 vs 2015).

To achieve the objective of RP2 the NM will continue to enhance ASM procedures and will ensure cooperation with the MILO to perform a network impact assessment to identify opportunity for a better utilisation of CDR 2 availability (see 2.1.2.2). Re-routing proposals (RRPs) are being sent to the airlines that can benefit from these opportunities. Improving the acceptance of these RRPs by the airspace users is another goal of NM.

FUA - booking procedures

Although NM is not responsible for booking and releasing the reserved/segregated airspaces, it will nevertheless support its military stakeholders in improving the effectiveness of booking procedures for Flexible Use of Airspace (FUA) as this can benefit the capacity available in the network.

5 ANALYSIS OF SENSITIVITY AND COMPARISON WITH THE PREVIOUS PERFORMANCE PLAN

5.1 Sensitivity to external assumptions

NM is conscious that its performance over RP2 is sensitive to some external assumptions. These are presented below with an indication of the risk and impact to changes in assumptions.

Changing assumption	Risk	Impact	Comment
Faster traffic recovery	Low	High	Network capacity performance was within target in 2012 and 2013. Traffic started to recover from August 2013 and is predicted to growth by 1.4% in 2014 and an average of 2.5% in RP2, which makes the delay target challenging. NM's ability to ensure that network capacity remains within EU targets would be impacted if traffic recovery was faster than anticipated.
Reduced resources	Medium	Medium	Without sufficient resources, NM's ability to invest in initiatives and systems will be hampered. In the current economic climate, this is a credible risk. It would mean prioritisation of initiatives and a revision of NM commitments.
Increased social unrest impacting ATC operations	High	High	In the current economic climate, there is increased social unrest and this can have a severe impact on operations. This can impact both flight efficiency and capacity and result in failing to achieve network targets (there will be little margin to accommodate those in a scenario of traffic growth and ambitious targets).
ANSPs achieving capacity plans	High	High	NM's ability to ensure that network capacity remains within EU targets would be impacted if ANSPs failed to address systemic issues to improve their capacity. If the ANSPs plan for a capacity improvement in line with the low scenario traffic growth (the basis for the cost efficiency target) and the traffic recovers faster, there is a high risk that provided capacity will not meet the demand.

Target Area	Risk	Impact	Comment
Environment – Airspace Design	Low	Medium	The ERNIP process is well advanced. Continued commitment and resources from ANSPs and FABs will be required to ensure that improvement proposals are implemented on schedule.
Environment – route utilisation	Medium	Medium	Use of flight efficiency opportunities requires strong commitment from airspace users, a dynamic capability and resources within AO control centres to react and in many cases upgrades of flight planning systems. The uptake of opportunities is also subject to operational decisions taking into account other factors of an airlines operational and cost model.

Target Area (cont'd)	Risk	Impact	Comment
Capacity – enroute ATFM delay	High	High	NOP 2015-2019 identified a number of constraint areas which will not meet the capacity required to achieve the network delay targets in RP2. Success will depend on continued ability to implement capacity improvement plans in a period of constrained resources and uncertain traffic outlook and find new improvements to close the capacity gap.
NM direct contribution to ATFM delay reduction and FE savings	Medium	High	During RP1 NM contribution to delay savings proved to have a significant impact on the achievement of the relevant network target. The NM direct FE savings are required to bring the flight planning indicator back on track. In addition to the adaption of the NM operational processes, confidence and buy in from ANSPs and AOs, and effective support for enhanced network operations procedures are essential.
Cost	Medium	High	The cost efficiency target is based on the current functions and tasks entrusted to NM. If these are expanded during RP2 the cost base will change and the cost target will be adversely affected.

Risk management is part of the overall process of monitoring and reporting on the NPP implementation. NM will monitor daily the performance of each ANSP in order to act in time and look for immediate corrective actions; and where needed to convene NDOP or NMB if there is a serious risk of network targets not being achieved.

NM has risk management practices in place to monitor these and other risks:

- Traffic is monitored monthly;
- Resources are monitored annually as part of business planning, but also monthly to ensure efficient use of funds;
- Social unrest and its impact on the network is monitored and regularly reported to NDOP and NMB, as is ANSP capacity planning.

5.2 Comparison with the previous performance plan

The development of the Network Performance Plan for RP2 started with a thorough revision of the NM Performance Plan for RP1 (NMPP). The relevance of each indicator was reviewed for its proven relevance to the performance of the particular area addressed. Moreover the objectives were validated against the achieved outcome to calibrate the ambition factor. The monitoring of operational performance showed additional areas where NM would like to have performance objectives to achieve in RP2.

The NMPP was integral part of the NSP and divided in two parts:

- NMPP Part I (Section 5 of the NSP) was developed in compliance with the SES requirements and contained the NM KPIs and related targets for RP1. The NPP for RP2 includes all those KPIs (and adds some more) and updates the targets to be in line with the adopted EU-wide targets for RP2;
- NMPP Part 2 (Annex B to the NSP) provided more information on the various NM actions and included additional NM indicators and related objectives for each performance area.

NPP is now a standalone document and integrates both Part I and Part II of the NMPP. Below there is a synopsis of the evolution of NMPP to NPP per each performance area.

Safety
There are two KPIs in this NPP in the safety key performance area while there were none in NMPP. They refer to the achievement by the NM for its own SMS of the required safety maturity and application of the RAT methodology. They are in line with the European wide KPIs for safety.

The Top 5 safety risks in the network will continue to be updated and actions developed for their mitigation. The over-deliveries indicator will continue to be monitored and actions taken to improve the situation (listed under the Capacity KPA).

In addition the RFF and TCF functions also have safety related objectives.

Environment/Flight Efficiency
The KPIs from the previous Performance Plan have more ambitious targets in RP2. In addition NM included an additional ambitious objective on the NM direct flight efficiency savings for the reduction of the flight planning indicator KEP.

The new KPI is the route extension due to actual trajectory with a target consistent with the EU wide number, but extending its application to the NM area.

The number of CDRs proved not to be a very reliable indicator for the airspace management. For example the CDR1 numbers have gone down but that is rather good news: CDR1 had been transformed in permanent routes. This is why this NPP no longer considers the CDR numbers as an indicator. NM will keep the planning and usage of the CDRs as indicators in NPP and related objectives have been defined. They are listed under Chapter 4.

The vertical flight efficiency proved to be very difficult to measure. NM used a proxy indicator (NOX) to monitor it but it doesn't capture just the vertical flight efficiency. The difficulty is situated in the missing optimum vertical profile for a flight (to have the similar baseline with the great circle distance in the horizontal flight efficiency). RP2 should see a progress in the definition of such a baseline for the vertical flight efficiency before we start to measure it (see section 2.1.2.4 for more info).

The reduction of the route restrictions is just one of the many initiatives that NM will deploy in RP2 to improve the planning indicator KEP. This is why NM no longer tracks this one separately in this NPP.

Capacity
The en-route network delay target as well as the NM contribution to en-route delay savings are featured again in this NPP. In addition, NM is having a similar NM delay savings objective for ATFM arrival delays.

The re-routing proposals and the network delay attribution are just tools (among others, see section 2.1.3.3) deployed by the NMOC to contribute directly to ATFM delay reductions. We will not track them separately but will monitor the achievement of the related KPIs on NM direct en-route and airports delay savings.

The weekend delay reduction indicator is different from the previous version as NM will concentrate its actions in the en-route weekend delays, as there is no gap between the weekdays and weekends performance at airports. That is also reflected in the quantified objective for this indicator.

New indicators and/or related objectives were set for weather, reactionary delays and the alignment between the airports slots and flight planning.

Cost efficiency
The NM has included a key performance indicator in its NPP while previously there was no requirement for a cost KPI.

6 IMPLEMENTATION OF THE PERFORMANCE PLAN

6.1 Description of the measures put in place to achieve the performance targets, such as:

6.1.1 Monitoring mechanisms to ensure that the safety activities and business plans are implemented

The implementation of the Safety Management activities will be tracked by a variety of means. Progress against RP2 safety KPIs/targets are monitored as indicated in the section 6.1.2.

In addition, the deployment of safety tools for ANSPs (including the RAT) will be monitored through the various stakeholder working arrangements and the Safety Improvement Sub-Group will facilitate the ongoing maintenance and deliverables from the NM 'Top 5' safety risks initiative.

Implementation will also be checked through a comprehensive range of internal safety-related indicators which support and are aligned with the SO7 Safety Objectives in the NSP. Finally, the E/LSSIP process records stakeholder implementation progress against agreed ESSIP/LSSIP Safety-related Objectives covering runway incursions and excursions, airspace infringements and the deployment of safety nets.

The NM Safety Management System is continuously monitored as indicated in the NM SMS Manual.

6.1.2 Measures to monitor and report on the implementation of the performance plans including how to address the situation if targets are not met during the reference period.

The Performance regulation in article 18 describes the independent monitoring of the NPP implementation. In this task the Commission will be assisted by the PRB, as per article 3(j) of the Performance Regulation. NM will facilitate this monitoring to ensure that NM performance can be independently monitored and verified.

The NM will report annually to the PRB and the Commission the results of the monitoring of the KPIs and related targets.

Within the NM governing arrangement, the approach for monitoring the key performance indicators in the NPP is as follows:

- NMB will review annually the progress against plan based on a report submitted by NM;
- NMB meets three times per year. Within the year, NM will report on KPIs and actions to enable NMB to monitor progress;
- The EoSM and RAT KPIs are monitored annually and be presented to NMB together with the status of the actions taken to improve it;
- The KEP KPI (route extension due to last filed flight plan) is currently monitored per AIRAC cycle. The indicator will be presented regularly to the NMB. The status of relevant actions from the NOP that address this indicator will also be reported;
- The KEA KPI (route extension due to last actual trajectory) will be presented regularly to the NMB. The status of relevant actions from the NOP that address this indicator will also be reported;
- The en-route ATFM delay per flight is monitored per week. The indicator will be presented to each NMB. The status of relevant actions from the NOP that address network and local capacity will also be reported;
- The cost efficiency indicator will be monitored annually and be presented to NMB together with the status of the actions to manage its costs and to meet its cost target.

It is planned to consult with NDOP on all performance reports and issues prior to NMB.

The Network Manager issues several reports weekly, monthly, seasonally and annually. These reports will present the status of the key performance indicators and where appropriate the other objectives from the NPP. These reports will highlight all divergences from all plans and associated KPIs, and will include details of corrective actions foreseen and their progress. Through the CDM process, the relevant groups, NDOP and NMB will monitor the implementation of these plans.

The monitoring of scarce resources indicators will be presented to the relevant groups as per the related CDM processes. Any significant issues will be presented to NMB. The crisis management updates will be presented annually to the NMB.

The table in Appendix 1 presents an overview of the indicators that will be monitored wherever possible to track NM performance.

APPENDIX I. INDICATORS OF NM PERFORMANCE

I.1 NM Key Performance Indicators for RP2

	Key Performance Indicators			NM Target
SAF	KPI	EoSM	The minimum level of the effectiveness of safety management	Improving its own SMS to reach at least Level D in the Management Objectives 'safety policy and objectives', 'safety risk management', 'safety assurance', 'safety promotion' and at least Level C in the Management Objective 'safety culture'
	KPI	RAT	The percentage of application of the severity classification based on the Risk Analysis Tool (RAT)	Apply the RAT methodology to all reported ATM specific occurrences with the categories AA (total inability to provide safe ATM services, B (partial inability to provide safe ATM services) and C (ability to provide safe but degraded ATM services).
ENV	KPI	KEP	The average horizontal en-route flight efficiency of the last filed flight plan trajectory	Achieve 4.1% for SES area for KEP indicator by 2019
	KPI	KEA	The average horizontal en-route flight efficiency of the actual trajectory	Achieve 2.6% value for KEA indicator by 2019 for the SES area
CAP	KPI	E-DLA	The average minutes of en-route ATFM delay per flight	The target of 0.5 min/flight is achieved for each year of the RP2 timeframe 2015-2019 and is applicable to SES area
COST	KPI	COST	NM total cost profile	See 2.2.4

I.2 NM indicators and the related internal objective/benchmark

	NM Indicators			NM Internal Objective
SAF	PI	Top risks	Top 5 Operational safety risks and priorities	Identification of Network operational safety risks (including for its own operations)
ENV	PI	DES	The average horizontal en-route flight efficiency of the airspace design	Improvement of the DES indicator by 0.57 percentage points from 2012 to 2019
	PI	N-KEP	NM contribution to FE savings on KEP	Deliver 10% (2015-2016) and 5% (2017-2019) of the savings required to achieve the annual 0.17 pp reduction in KEP
	PI	KEP-NM	The average horizontal en-route flight efficiency of the last filed flight plan trajectory	Achieve 3.82% for NM area for KEP indicator by 2019
	PI	KEA-NM	The average horizontal en-route flight efficiency of the actual trajectory	Achieve 2.6% for NM area for KEA indicator by 2019
	PI	CDR-RAI	The rate of planning of Conditional Routes	to increase the CDR planning (CDR-RAI) by 5% between 2015 and 2019
	PI	CDR-RAU	The effective use of CDRs	to increase the CDR usage (CDR-RAU) by 5% 2015 and 2019

I.2 NM indicators and the related internal objective/benchmark (cont'd)

		NM Indicators		NM Internal Objective
CAP	PI	DLA-SAV	The average minutes of en-route ATFM delay per flight	The target of 0.5 min/flight is achieved for each year of the RP2 timeframe 2015-2019 for NM area
	PI	E-DLA-NM	NM contribution to delay savings	Deliver additional operational benefits in terms of en-route delay savings of 10% of total en-route delay
	PI	W-DLA	Weekend delays reduction	NM objective is to reduce en-route weekend delays by 80,000 minutes per year
	PI	NWR	Mitigation of weather generated delays, achieving the decision maturity for the Network Weather Resilience process.	Achieve decision maturity level (M3) for 50% of the top 60 airports (based on the airport network impact and/or past weather phenomena significance) as well as 50% of the top 20 ACCs
	PI	B-DLA	Minimising individual flight penalties	Maintain the percentage of flights with delay (any cause) > 30 minutes to less than 1% of total flights
	PI	S-DLA	ATFCM Efficiency	NM objective is to reduce the average daily number of ATFCM regulations that produce less than 200 minutes of delay to below 20 per day
	PI	F-DLA	Reactionary Delays	NM objective is to target at least one airport/ACC each year from the ones with significant network impact to reduce first rotation delays (related to capacity and staffing) by 10% at those airports
	PI	A-DLA	The average minutes of arrival ATFM delay per flight attributable to terminal and airport air navigation services and caused by landing restrictions at the destination airport	Delivering additional operational benefits of arrival delay savings of 5% of total arrival delays

APPENDIX II. DOCUMENT REFERENCES

NM regulation	Commission Regulation (EU) 677/2011 of 07 July 2011 laying down detailed rules for the implementation of air traffic management (ATM) network functions
ATFM regulation	Commission Regulation (EU) No 255/2010 of 25 March 2010 laying down common rules on air traffic flow management
Performance regulation	Commission Regulation (EU) No 390/2013 of 3 May 2013 laying down a performance scheme for air navigation services and network functions
NSP	Network Strategy Plan 2015-2019 **http://www.eurocontrol.int/publications/network-strategy-plan-2015-2019**
NOP	Network Operations Plan - the references in this NPP are made to the version NOP 2015-2019 available at: **http://www.eurocontrol.int/publications/european-network-operations-plan-2015-2019**
ERNIP	European Route Network Improvement Plan Last edition can be found at: **http://www.eurocontrol.int/articles/airspace-design**

LIST OF ACRONYMS

A

ACC	Area Control Centre
AIRAC	Aeronautical Information Regulation and Control
AMAN	Arrival Manager
ANSP	Air Navigation Service Provider
APF	Aerospace Performance Factor
APM	Approach Path Monitor
APW	Area Proximity Warning
A-SMGCS	Advanced Surface Movement Guidance and Control System
ASMT	Automatic Safety Monitoring Tool
ATFCM	Air Traffic Flow and Capacity Management
ATFM	Air Traffic Flow Management
ATM	Air Traffic Management

C

CCAMS	Centralised SSR Code Assignment and Management System
CDM	Cooperative Decision-Making
CDO	Continuous Descent Operations
CDR	Conditional Routes
CS	Central Services
CTM	Cooperative Traffic Management

D

DES	Route extension due to airspace design
DPI	Departure Planning Information

E

EACCC	European Aviation Crisis Coordination Cell
EASA	European Aviation Safety Agency
ECAC	European Civil Aviation Conference
EoSM	Effectiveness of Safety Management
ERNIP	European Route Network Improvement Plan
ESSIP/LSSIP	European/Local Single Sky Implementation
ETFMS	Enhanced Tactical Flow Management System
EVAIR	EUROCONTROL Voluntary ATM Incident Reporting

F

FAB	Functional Airspace Blocks
FE	Flight Efficiency
FIR	Flight Information Region
FL	Flight Level
FMP	Flow Management Position
FPL	Flight Plan
FTE	Full Time Equivalents
FUA	Flexible Use of Airspace

H-I

HR	Human Resources
IFPS	Integrated Initial Flight Plan Processing System
IFR	Instrumental Flight Rules

K

KEA	Horizontal en route flight efficiency of the actual trajectory
KEP	Horizontal en route flight efficiency of the last filed flight plan
KPA	Key Performance Area
KPI	Key Performance Indicator

M

MCP	Mandatory Cherry-Picking
MILO	Military Liaison Officer
MO	Management Objective
MSAW	Minimum Safe Altitude Warning

N

NDOP	Network Directors of Operations Forum
NM	Network Manager
NMB	Network Management Board
NMD	Network Manager Directorate
NMOC	NM Operations Centre
NMPP	Network Manager Performance Plan for RP1
NOP	Network Operations Plan
NPP	Network Performance Plan for RP2
NSP	Network Strategy Plan

O-P

OVD	Over-deliveries
pp	percentage points
PRB	Performance Review Body

R

RAD	Route Availability Document
RAT	Risk Analysis Tool
RECAT	Re-categorisation of Wake Turbulence Separation Minima
RFF	Radio Frequency Function
RP	Reference Period
RRP	Re-routing Proposals

S

SES	Single European Sky
SMS	Safety Management System
SO	Strategic Objective
SSR	Secondary Surveillance Radar
STA	Scheduled Time of Arrival
STAM	Short-Term ATFCM Measures
STATFOR	EUROCONTROL Statistics and Forecasts Service
STCA	Short-Term Conflict Alert
STD	Scheduled Time of Departure

T

TBS	Time Based Separation
TCF	Transponder Code Function
TMA	Terminal Control Area
TOKAI	Toolkit for ATM Occurrence Investigation

U

UPP	User-Pays Principle

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